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**The Impact of Career Colleges on the Minnesota Economy**

**A Report Provided to the  
Minnesota Career College Association**

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**by**

**New Pharos Consulting**

**January, 2012**



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## **Executive Summary**

Career colleges in Minnesota play an important role in the post secondary system in the state of Minnesota. Some of these institutions have a long tradition that is decades old. These operations have an important impact on the Minnesota economy. A group of these institutions, through the Minnesota Career College Association, have sponsored an analysis of this impact. This executive summary provides a synopsis of the findings of this analysis.

### **Higher Education Environmental Background**

Economic impact analysis without an environmental context is useful, but a bit barren. The first substantive section of the report describes the budgetary, economic and demographic conditions in Minnesota.

The major findings of this analysis are:

- State spending on higher education for the public institutions and programs like the State Grant that serve both the public and private sector, as a share of the state general fund budget, has been declining for the last two decades.
- Pressures from health care spending driven by an aging population coupled with much lower revenues as people retire will create dramatic tensions between various budget areas.
- Population change in the next seven to 10 years in prime age groups (ages 17 to 25) is negative and while Minnesota has a net in migration of educated people, the numbers are not large enough to create competitive issues for career college graduates.
- Percent increases in tuition and fees over the last decade are lower at career colleges than other sectors. Public sector institutions experience the highest increase. The range between low and high levels of tuition and fees within any particular sector are much smaller at public institutions. Net prices, after all financial aid, are lower at MCCA schools than MPCC institutions, although still quite a bit higher than public institutions.
- Health care, technology and educational services are the leading industries in job growth through 2019.
- These same fields lead occupational growth during this same seven to 10 year period.
- Even with relatively aggressive assumptions from the Georgetown study about educational attainment needs, the state may be producing more associate degrees than will be needed by the economy and is about in line with bachelor degree production. The market may be in certificate production.

### **Program Inventory**

MCCA institutions offer a variety of programs across a spectrum of study areas. At the same time there is a marked focus on business and health related programs. An inventory of these programs, combined with data on the number of awards made by the institutions suggests the following findings:

- Of the 38 major program areas identified by the federal government MCCA institutions offers programs in 15.
- MCCA institutions provided about 5.6 percent of degree awards in Minnesota in 2009-10.
- ISEEK reports that MCCA school offer courses in 356 different program areas.

## **Student Demographic Background**

Student demographics are an important metric for any single institution or set of institutions. The report presents 21 different variables to describe students attending for-profit institutions. The major findings of this analysis are:

- The student population at for-profit schools tends to be more female than male. The for-profit schools have 8.4 % of the population but 10.0 % of the female attendees in the state.
- The student population contains a larger share than average of individuals indicating they possess some type of disability.
- The student population at for-profit schools is significantly more likely to have dependent children.
- Students are much more likely to be independent, again often with children.
- Students with dependent children are more likely to be single parents.
- The student population at for-profit schools is less likely to be white and much more likely to be black or Hispanic.
- These students tend to be from families where parents, relatively speaking, are not as well educated, i.e., they are more likely than students in other sectors to be first generation students.
- For-profit schools have a significantly larger veteran population.
- The student population is relatively older, more typically 25 years and up.
- The student population is more likely to attend part time, part year or a combination rather than full time or full year.
- The student population is somewhat more likely to have larger credit card debt.
- There is a larger share of “income as an independent student,” in large part since there are more independent students at these schools.
- The parent income for dependent students is at the low end of the income distribution.
- The student population is more likely to be enrolled in a certificate or associate program. Although many programs are offered at the BA level, enrollment tends to be in programs less than four years.
- The student population is more likely to be in business or health programs.
- The primary academic goal indicated by students is a certificate, associate’s degree and to some extent a bachelor’s degree.
- Students are more likely to consider themselves to be primarily employed full time and attending school part time.
- As employees first, these students are more likely to work three quarters or full time.
- Because they work longer hours, job earnings tend to be higher than for students in other sectors.
- Similarly, overall income tends to be higher for these students.

## **Returns to Post Secondary Education**

Annual income differences between a high school graduate and an associate’s degree and bachelor’s degree respectively for Minnesota are determined from the American Community Survey. When life-time figures are computed and adjusted for projections of real wage growth from the Congressional Budget Office, a person with an associate’s degree will earn an additional \$570,000 and one with a bachelor’s degree will earn an additional \$1.4 million compared to the high school graduate.

The study reports rates of return to post secondary education. The private rate of return to post secondary education is substantial. Estimates for four year degrees are about 12 percent. Estimates for two-year degrees, while subject to some disagreement, are about eight percent.

### **Economic Impact Analysis**

The focal point of this report is the evaluation of the economic impact on the state of Minnesota attributable to career colleges. Economic impact takes two forms, the current activity of the institutions and equally important, the impact of the schools on the development of human capital and the increase in earnings for students. This activity has an impact on state and local taxes. The major findings of this analysis are:

- Career colleges account for about \$1.309 billion annually in total output in the state as measured by income. This includes \$595 million directly and \$714 million indirectly after all multiplier impacts are taken into account.
- Career colleges directly and indirectly produce about 14,900 jobs annually in the state.
- Career colleges directly and indirectly produce almost \$450 million in earnings annually in the state.
- These earnings produce about \$21 million annually in state income tax revenue. They produce an additional \$9 million in sales taxes.
- Career colleges directly and indirectly produce nearly \$750 million in value added annually in the state.
- Career colleges pay about \$7.6 million annually in property taxes to state and local government. They provide an additional \$4.3 million annually in other state taxes.
- Summing the various tax estimates results in total taxes of about \$42 million annually.
- MCCA institutions produce about 66 percent, or two thirds of the output in the state. These same institutions likewise are responsible for 66 percent of the jobs, earnings and other measures.
- Exploratory analysis suggests each year new graduates of career colleges may earn about \$300 million more in income than they would had they not gone on to receive a post secondary degree. This produces additional \$14 million in income tax revenue for the state.

## **Introduction and Study Purpose**

Career colleges in Minnesota play an important role in the post secondary system in the state of Minnesota. Some of these institutions have a long tradition that is decades old. They provide a set of educational services that meets the needs of hundreds of Minnesota students and families each year and the test of the market every day.

While roles can be measured in many ways, one important perspective is the impact of current operations and the development of human capital on the Minnesota economy attributable to these institutions. An advocacy group, the Minnesota Career College Association (MCCA), has engaged New Pharos Consulting to analyze and evaluate this impact. This report is the result of that work. The report also serves a second purpose to member institutions. The document contains substantial background information, including projections of labor force needs and demographics that will help institutions in the planning process.

The report is structured in the following way. Section one is an executive summary of the results of the analysis. The second section is a list of the member institutions of MCCA. Sections three, four and five provide an environmental background for the impact analysis. Section three of the study describes the budgetary, economic and demographic conditions in Minnesota. The state budget matters for higher education. Economic and demographic conditions establish the marketplace for higher education. The material covered includes information on the state's budget for higher education, an analysis of general economic and demographic trends, tuition and fee pricing among higher education sectors, industry forecasts and occupational demand projections through 2019 from the Bureau of Labor Statistics and the Department of Employment and Economic Development. These occupation demand projections serve in turn as a basis for the educational requirements needed by the labor force.

MCCA institutions offer a variety of programs across a spectrum of study areas. An inventory of these programs, combined with data on the number of awards made by the institutions, is presented in section four.

Student demographic, socio-economic and academic characteristics reveal important information about how institutions operate as well as their relative position in the market place. Section five presents data on students in the for-profit sector in Minnesota.

Sections six and seven provide the economic impact analysis. Section six of the study describes earnings differences and rates of return to post secondary education. It is a well established fact that people with higher levels of education on average make more income annually than those without this training. The final section of the report describes the impact of career colleges on the Minnesota economy. There are two major sources of this impact, current economic activity and the change in income from the investment in human capital.

There are three appendices, the first describing the consultant's background and two with detailed tables noted in the text. A note on institutional labeling; the terms "career college" and "for-profit institution" are used interchangeably in the report. This simply reflects the different labels applied to the same set of institutions by various educational and governmental entities.

## **List of MCCA Institutions**

**Academy College**

Bloomington

**Art Institutes Intl Minnesota**

Minneapolis

**Brown College**

Mendota Heights

**DeVry University**

Edina

**Duluth Business University**

Duluth

**Globe University**

Woodbury and Minneapolis

**Herzing University**

Minneapolis

**Institute of Production and Recording**

Minneapolis

**ITT Technical Institute**

Eden Prairie, Brooklyn Center and Woodbury

**Le Cordon Bleu College of Culinary Arts**

Mendota Heights

**McNally Smith College of Music**

Saint Paul

**Minneapolis Business College**

Roseville

**Minnesota School of Business**

Blaine, Brooklyn Center, Elk River, Lakeville,  
Moorhead, Plymouth, Richfield, Rochester, Shakopee, St. Cloud

**National American University**

Brooklyn Center, Bloomington, Roseville, Minnetonka

**Northwest Technical Institute**

Eagan

**Rasmussen College**

Blaine, Brooklyn Park, Eagan, Bloomington, Lake Elmo/Woodbury, Moorhead, St. Cloud, Mankato

# **Budgetary, Economic and Demographic Conditions in Minnesota**

## **Introduction and Summary**

Economic and demographic conditions establish the marketplace for higher education. The state budget for higher education has a large influence on institutional operations. This section contains a broad range of data describing the budgetary, economic and demographic conditions in Minnesota. The first part presents information on the state's budget for higher education spending and describes how this spending may be influenced in the future. The data presentation draws on work by national experts and the state's economist and demographer. The following parts include an analysis of general economic and demographic trends, tuition and fee pricing among higher education sectors, industry forecasts and occupational demand projections through 2019 from the Bureau of Labor Statistics and the Department of Employment and Economic Development. These demand projections serve as a base for the analysis of degree requirements in the future.

## **Short and Long Term State Budget Environment**

The 2011 session concluded after the Legislature passed 12 separate budget bills in a special session. This action addressed the immediate problem of funding for the 2012- 2013 biennium and established base funding for the 2014-15 biennium. Longer term state budget pressures are also an important consideration for strategic planning. This section of the study presents information on both the short to medium term funding for higher education and conditions of the longer term environment.

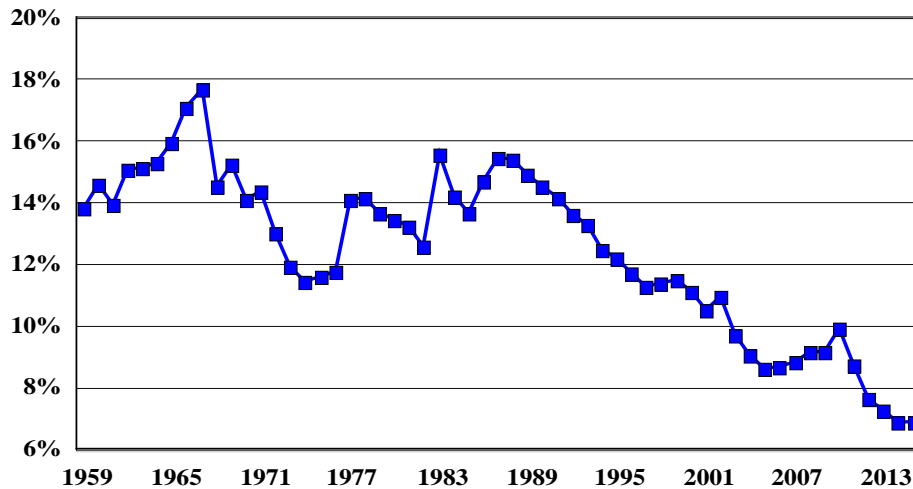
### ***Short Term Budget Environment***

The legislature completed work on the appropriation bills for 2012-13 in July of 2011. The total budget for higher education funding, including the three major program areas-the University of Minnesota, the MnSCU system and the State Grant program-was reduced from the base level by \$351 million. All of this reduction was taken from the two public systems which received decreases from base levels of about \$193 million at the University and \$171 million at MnSCU. The State Grant program actually received an increase of \$10.5 million each year with a smaller increase of about \$800,000 in the Work Study program. While the additional State Grant funding was higher than the base, it was about \$10 million lower than was needed to fully fund the program at expected demand levels. This fact changed with a new forecast of the State Grant in November that shows a surplus for the biennium of about \$6 million.

Higher education has not been a funding priority of the state for many years. Chart 1 below shows higher education spending as a share of the total general fund budget. The share peaked in the late 1980s, although there was some minor turn in 2006 and 2007.



**Chart 1**  
**State Spending on Higher Education as a Share of all Spending**



Funding in the 2014-15 planning numbers is held flat at 2013 appropriated levels. This fact will continue the downward shift in the share of general fund spending for higher education, as other budget areas experience planned increases. While these are planning numbers and not appropriations, it will take affirmative action to improve the levels.

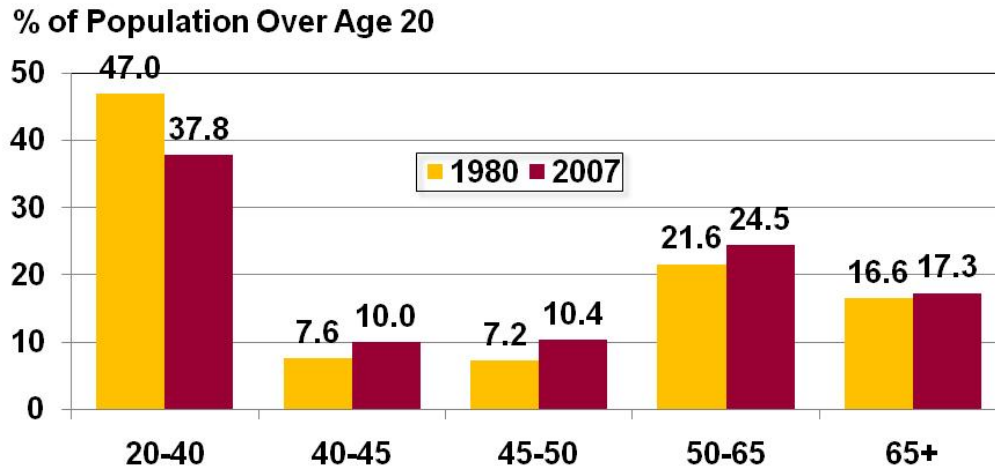
These budget levels were decided with revenue numbers projected in the February, 2011 forecast. A new forecast was issued December, 2011 indicating the state would have a substantial surplus the remainder of the biennium. It is highly unlikely that any higher education programs will face funding decreases in the 2012 session.

### ***Long Term Budget Issues***

Tom Gillaspy, the state demographer, and Tom Stinson, the state economist, have developed a long term perspective of the budget environment for the state. There are several selected charts below from their presentation that provide the general picture of this budget environment. It is not a positive picture for higher education.

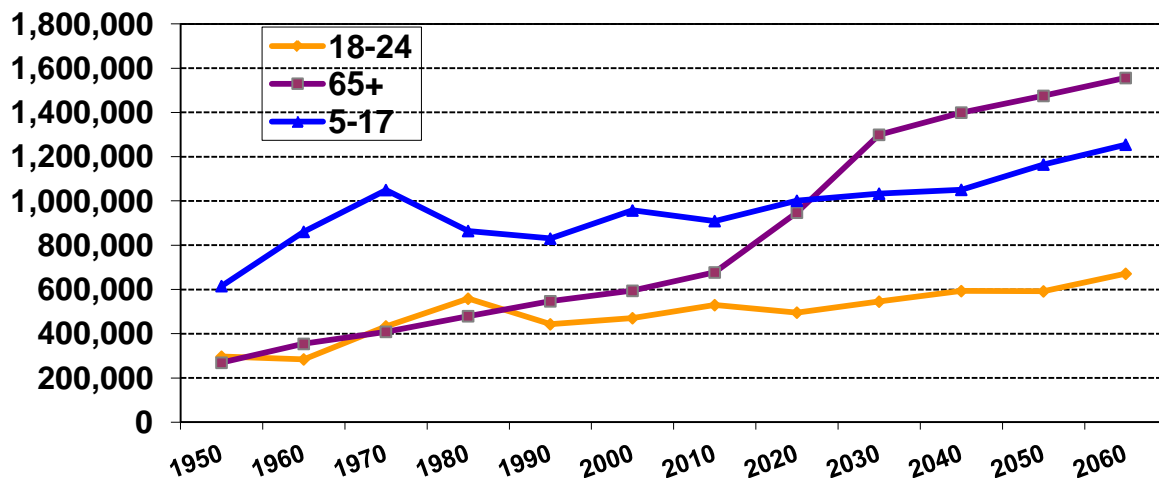
As shown in Chart 2, the historical age distribution of the population has changed over the last three decades. As a percentage share of total population, people between 20 and 40 is lower. All of the age cohorts over 40 years of age are larger. People at older age cohorts have different demands on the public sector- typically human service demands – than younger people.

**Chart 2**  
**The Age Distribution of the Population Has Changed**



Medium term projections through 2020 and longer term projections through 2060 indicate this pattern will continue. Most of the growth in the population will occur in the older cohorts with low growth in school age children and flat to declining change in 18 to 24 year olds, a group important to higher education.

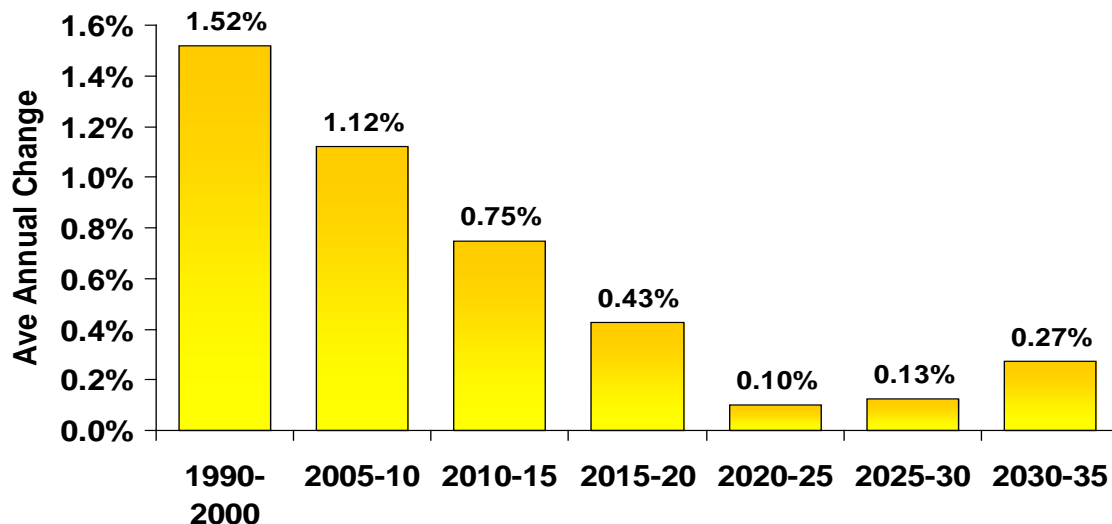
**Chart 3**  
**More in the 65 and Older Group than in School Age by 2020**



This age distribution of population growth has important implication for the labor force. As people age they retire and exit the labor force. This shift exacerbates the public policy problem. As they leave the labor force their income drops and they produce less in the way of state revenue. Stinson and Gillaspy,

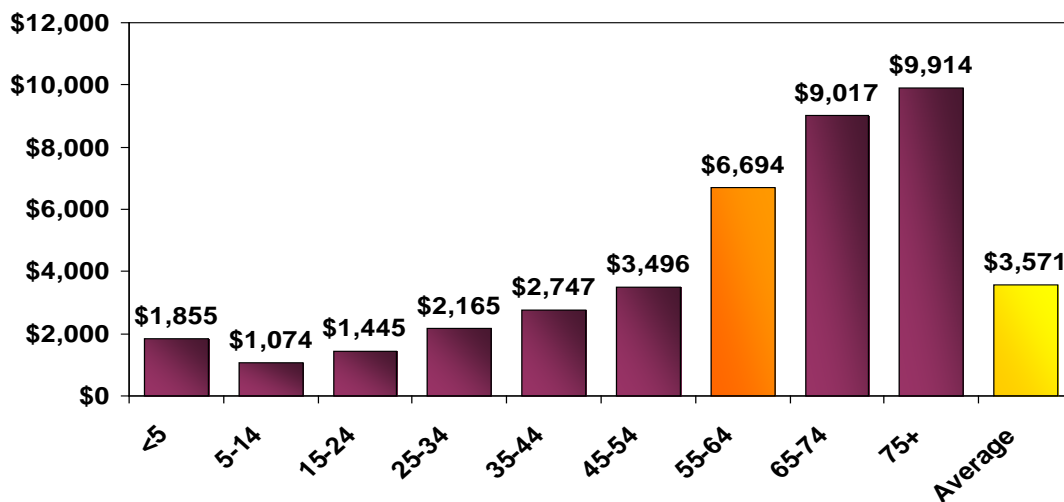
along with the Budget Trends group that met during 2009, find that revenues growth from all sources (income, sales, etc) will drop off.

**Chart 4**  
**Labor Force Growth Will Slow**



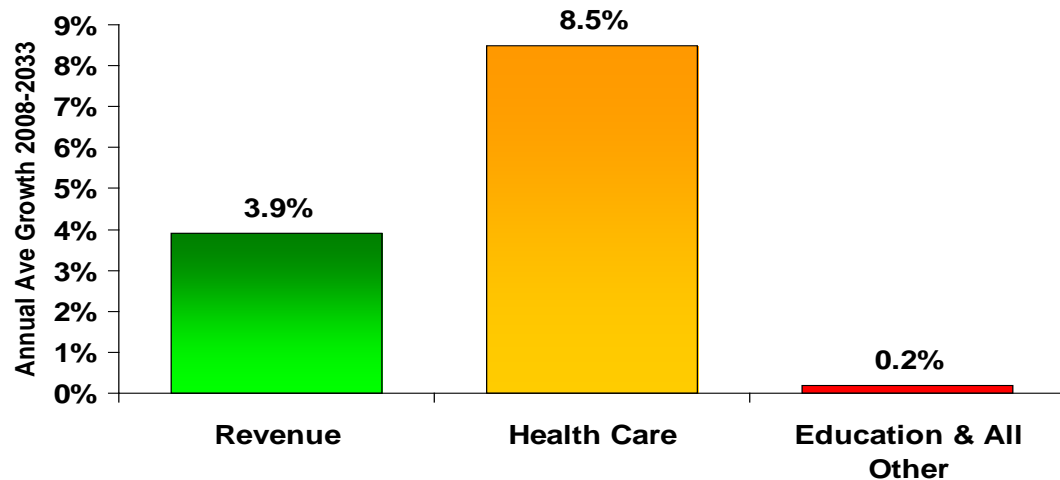
As people age they demand more in humans service programs. Chart 5 demonstrates health care spending across all age levels. Spending on average increases dramatically for people age 55 and older; in aggregate most health care spending occurs near the end of people's lives. Since this is the prominent growth age cohort, state spending in health care related programs will increase dramatically in the future.

**Chart 5**  
**Average Health Care Spending Much Higher After Age 55**  
**US Averages in 2004**



The budget implications of this demographic shift are significant. Given declining revenue growth and increased spending on health services, there is little left for other budget priorities. At this point, there is clearly little political appetite to raise revenues through tax increases. As these pressures evolve over time, the tension between the various spending areas will grow. These facts will make it all the more difficult to increase the share of spending on higher education.

**Chart 6**  
**State Health Care Spending at Current levels will Consume Budget Resources**



### Population Growth and Migration Patterns

Population changes at certain age groups establish important conditions for all higher education institutions. Migration patterns in and out of the state are also important considerations for competitive reasons.

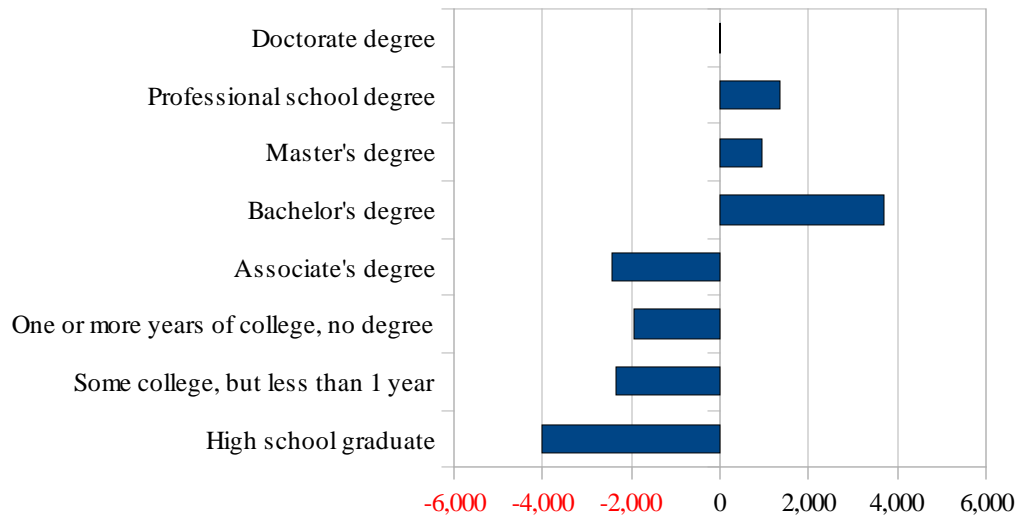
Table 1 below shows projections by certain ages and years between 2008 and 2017. These have been developed by the state demographer and have been sorted into groups that have relevance to planners at higher education institutions. After 2012, the 17 through 25 year age groups show a marked decline through 2017. Competition between institutions for these students in all sectors will become more intense. The 26 through 35 age cohort, a target population for some career schools, will be increasing. With participation rates out of high school already exceeding 70 percent, other methods will be needed to address enrollment concerns.

**Table 1**  
**Population Projections by Certain Age Groups Though 2017**

<b>Age Group</b>	<b>2008</b>	<b>2012</b>	<b>2013</b>	<b>2015</b>	<b>2017</b>
0 to 16	1,180,381	1,205,719	1,216,270	1,242,155	1,269,977
17	74,263	69,468	68,495	66,715	66,957
18	72,129	67,629	66,821	64,658	64,217
19	75,633	73,106	71,817	70,025	68,391
20	72,366	74,705	71,168	69,153	67,063
21	71,669	81,526	74,701	69,954	68,248
22	72,116	88,274	81,097	70,823	68,843
23	72,172	78,691	86,963	73,194	68,655
24	71,204	72,533	79,633	80,879	70,717
25	71,710	74,176	73,480	89,118	75,237
26 to 35	687,079	751,553	759,727	779,667	806,940
36 to 45	740,553	688,340	687,352	687,120	691,895
45 and above	1,959,118	2,143,700	2,173,498	2,231,760	2,293,208
Total	5,220,393	5,469,420	5,511,022	5,595,221	5,680,348

Migration also has an impact on the labor force and competition for jobs. The American Community Survey (ACS) measures the movement of people between states and countries. This data for numbers and educational attainment of movers allows us to analyze the migration patterns of people by various educational levels. Chart 7 shows net migration by education levels between 2007 and 2009 from the ACS. For this period, there was a net outflow of people with levels of education below a bachelor's degree. There is net migration of people into the state with bachelor's degrees and above. These numbers are generally consistent with patterns of migration going back to the 1990's. Minnesota typically has been a net importer of highly educated people. While positive for the economy, the absolute size of these numbers will not have a significant impact on the overall demographics of the population and do not generally pose any competitive threat to graduates of career colleges in the state. However, in specific cases, a career college graduate may very well be competing with a recent graduate from Wisconsin or North Dakota.

**Chart 7**  
**Net Migration by Educational Attainment Level**  
**2007 through 2009**



### **Tuition and Fees Charged at Post Secondary Institutions**

Prices, or tuition and fee average levels and changes, are important metrics to evaluate higher education. These matter to every stakeholder involved in the system. Students who pay tuition want levels as low as possible. Families concerned about their children's education at affordable prices have an interest. The institutions must run the enterprise and rely heavily on this income. Faculty know that revenue impacts both the quality of the program and their paychecks. Policy makers find themselves in the middle of the debate.

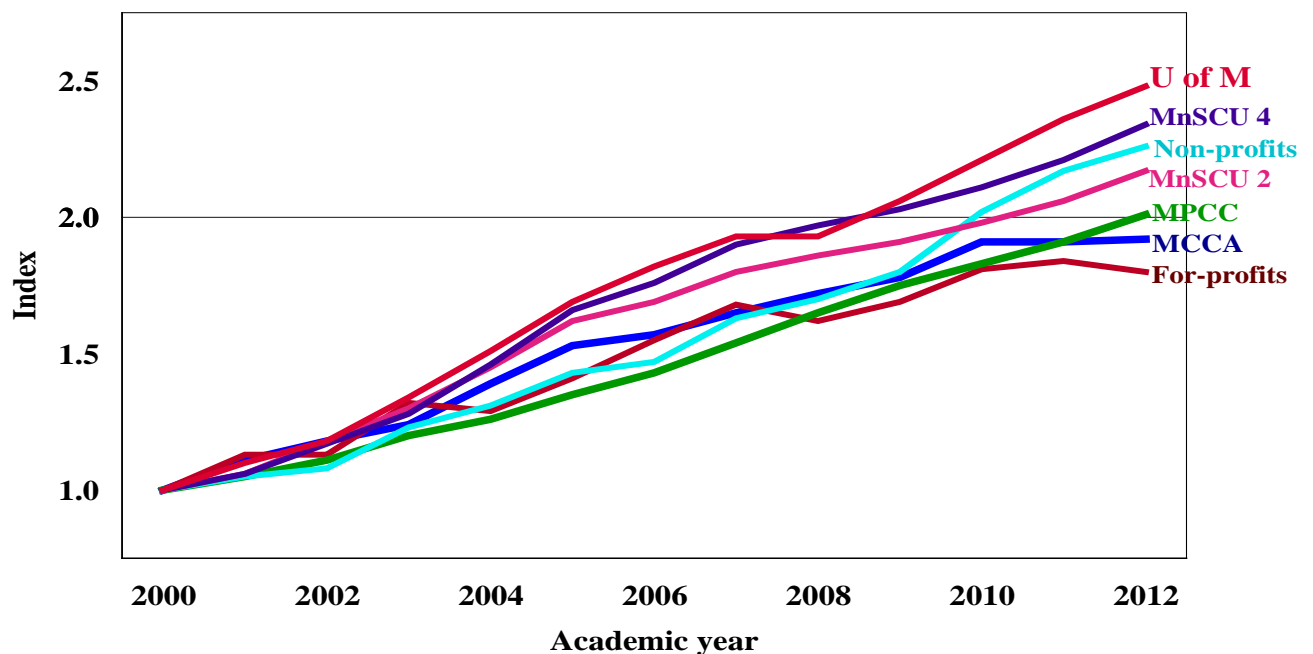
An accurate depiction of priced changes requires consistently reported data across time for all the institutions. The tuition and fee information filed with the Office of Higher Education for the State Grant program meets this requirement. This data has a number of distinct advantages. It is timely; data for fall of 2011 is available. It is comprehensive; an institution with students qualifying for the State Grant is required under law to provide tuition and fee data. The rules are consistent across institutions. Finally, the data is audited assuring a higher quality of informational content.

The data was separated into seven different groups. These are MCCA member institutions, other for-profit institutions, Minnesota Private College Council member institutions, other non-profit institutions, MnSCU two-year colleges, MnSCU four year universities and the University of Minnesota. This level of sub-sectoral breakdown has not been published before. The data is for the period from 1999-2000 to 2011-12. Simple means across the institutions in each group are used to reflect the average for the group. While this is somewhat less than desirable- weighted averages based on enrollment would be preferred-

consistent historical weights across all sectors are difficult to obtain. This means for some sectors this data may differ from some published elsewhere.<sup>1</sup>

Chart 8 and Table 2 show this data. The chart shows growth in the average tuition and fee levels for each group over the time period. To facilitate the analysis, each sector is indexed to 1999-2000 (this simply means each year is divided by the first year so year one equals 1.0). By comparing the different indexes over time we can determine in which group tuition and fees are growing relatively faster or slower. A higher index in one group means tuition and fees have grown at a faster rate in that group. The data indicate that the three public sector groups and “other non-profit institutions” have more than doubled their averages compared to 1999-2000. The MPCC institutions are, on average, right at 2.0 but both for-profit groups are below 2.0. Tuition and fees have grown more quickly in the public sector than the private sector generally. This is not a surprise for public institutions as they replace declining state funding with tuition revenue. Institutions that are tuition dependent, the private institution in the for-profit and non-profit sectors, have been forced by experience to deal with market based funding. Public institutions are moving into this financial environment as state funding recedes.

**Chart 8**  
**Change in Average Tuition and Fees by Institutional Group**  
**1999-2000 to 2011-12**



<sup>1</sup> OHE publishes weighted means for MnSCU institutions. Tests were done on recent years with enrollment based weights and indicate the results may differ very little.

Chart 8 above shows the growth in average tuition and fees over time. Equally important are the levels and ranges within each group. Table 2 shows the low, average and high tuition and fee level for three different time periods. The way the table reads is that in each cell the minimum, average and maximum tuition and fee level for that group for the year shown.

<u>Year</u>
Minimum Tuition and Fee
Average Tuition and Fee
Maximum Tuition and Fee

For example, in the first cell in the upper left hand corner, the average tuition and fee for MCCA schools was \$18,336 for the current school year. The minimum, or lowest amount charged by a member of the group was \$14,640. The highest level was \$23,760. The chart allows one to quickly make comparisons between the sector and across years of not only average levels but the range around these levels. The range is important since key information can be lost in averages. Generally speaking, the range of tuition and fee averages has grown wider over time. This means that regardless of the sector, institutions are increasingly differentiating themselves on price.

**Table 2**  
**Published Tuition and Fee Averages and Ranges for Selected Years**

	<b>2011-12</b>		<b>2004-05</b>		<b>1999-00</b>	
MCCA	18,336	14,640	15,010	11,029	9,539	7,095
		23,760		22,572		14,429
		5,904		5,689		450
Other For-profits	10,689	22,500	9,258	18,792	5,955	11,440
		22,280		15,716		9,860
		31,862		22,782		15,883
MPCC	31,862	42,942	22,782	32,649	15,883	23,469
		5,100		3,740		1,000
		15,484		10,054		6,863
Other Non-profits	15,484	25,820	10,054	18,040	6,863	14,336
		3,365		3,050		2,185
		5,096		3,978		2,349
MnSCU 2 Year	5,096	5,521	3,978	4,308	2,349	2,483
		6,341		4,682		2,836
		7,443		5,598		3,177
MnSCU 4 Year	7,443	8,538	5,598	6,673	3,177	3,749
		11,096		8,119		4,792
		12,150		8,903		4,898
U of Minnesota	12,150	13,062	8,903	9,722	4,898	5,311



On average, all private institutions have tuition and fee levels higher than institutions in the public sector. This is unremarkable, given the general subsidy provided to public institutions by the state. MCCA schools are second only to the MPCC institutions, although the difference in sticker price between these two sectors is significant. MPCC schools are noted for their generous aid packages made possible by endowments, but these figures suggest a large amount of aid is needed to equate the prices. The range around the MCCA average is smaller than for the other private schools. MnSCU institutions have relatively tight pricing policies. Again, not unexpected since the tuition levels are set by a central board.

Finally, while sticker prices are widely publicized, net prices matter more to students and families. Students typically don't pay the published price of an institution, but some lower amount after publically and privately funded scholarships and grants are taken into account. Table 3 shows net price by group for 2008-09 from IPEDS. The first column shows the average cost of attendance at the group institutions. Column 2 is average net price and the third column is simply the ratio of net price to cost.

While MCCA students have the highest remaining student share, the actual net cost to students is still below MPCC options. Public sector schools remain the lowest cost option for students. What is surprising is how relatively close the three public groups are to one another.

**Table 3**  
**Costs and Net Prices faced by Students by Institutional Group**  
**2008-09**

	Average Cost of Attendance	Average Net Price	Student Share
MCCA	\$27,381	\$20,255	74%
MPCC	\$37,903	\$22,441	59%
Other Non-profits	\$23,884	\$16,896	71%
MnSCU 2 Year	\$16,863	\$10,518	62%
MnSCU 4 Year	\$17,166	\$11,216	65%
U of Minnesota	\$19,693	\$13,345	68%

## Industrial Patterns Projected to 2019

Career colleges train students for jobs in different occupations. But the demand for products and services is typically measured at the industry level. For instance, as people demand more services from the health care industry companies in those industries need more employees. Industry demand, as measured by total employment, is one metric to understand demand for career college graduates.

Total employees projections are available from the Department of Employment and Economic Development (DEED). Table 4 shows projected percent changes in employment by industry from 2009 through 2019 for the fastest growing industries. These are reported at the four digit NAICS code level. Health care and technology will be leading industries into the future.

**Table 4**  
**Projected Employment Growth for top 30 Fastest Growing Industries**

NAICS Code	Title	2009 Employment	2019 Employment	Percent Change	Total Change
5416	Management & Technical Consulting Svc	13,012	21,100	62.2	8,088
6215	Medical and Diagnostic Laboratories	2,427	3,900	60.7	1,473
6216	Home Health Care Services	17,822	27,000	51.5	9,178
6214	Outpatient Care Centers	9,234	13,900	50.5	4,666
6241	Individual and Family Services	45,001	66,700	48.2	21,699
4529	Other General Merchandise Stores	14,804	21,577	45.8	6,773
6116	Other Schools and Instruction	7,017	9,700	38.2	2,683
5191	Other Information Services	1,311	1,780	35.8	469
6211	Offices of Physicians	62,113	83,400	34.3	21,287
6219	Other Ambulatory Health Care Services	6,140	8,195	33.5	2,055
6117	Educational Support Services	2,496	3,300	32.2	804
5612	Facilities Support Services	758	1,000	31.9	242
8121	Personal Care Services	15,782	20,800	31.8	5,018
7113	Performing Arts and Sports Promoters	2,057	2,687	30.6	630
5331	Lessors, Nonfinancial Intangible Assets	1,201	1,564	30.2	363
6239	Other Residential Care Facilities	4,635	6,000	29.4	1,365
5621	Waste Collection	3,867	5,000	29.3	1,133
2389	Other Specialty Trade Contractors	8,917	11,400	27.8	2,483
6243	Vocational Rehabilitation Services	12,759	16,300	27.8	3,541
5182	Data Processing and Related Services	6,690	8,500	27.1	1,810
5613	Employment Services	42,179	53,000	25.7	10,821
5616	Investigation and Security Services	8,845	11,000	24.4	2,155
5415	Computer Systems Design and Rel Services	27,429	34,100	24.3	6,671
5419	Other Professional & Technical Services	12,411	15,400	24.1	2,989

## Occupational Patterns Projected to 2019

Career colleges train students for jobs in different occupations. Occupations are tied to skill levels and the work of people as defined by roles and responsibilities of each occupation. Occupational demand projections are key to the planning process of career colleges. These projections can inform strategic planning, programmatic evaluation and operational management. Occupational demand comprises two components, replacement hires and new job openings. Replacement hires are required as people retire and leave the workforce, leave jobs and move to other states or change occupations. New hires occur as em-

ployers increase the size of their work force in response to economic demand. The occupational demand number of interest is the sum of these two-new hires plus replacement hires.

The occupational demand projections used in the report are also from DEED. They are timelier than national projections running from 2009 through 2019 (national projections run from 2008 through 2018). These projections should be viewed as a long term condition that informs discussion and not specific targets. The actual figures are likely to be different as the economy continues to slowly climb out of the deep recession that began late 2007. <sup>2</sup> DEED projects that over the next ten years cumulatively, there will be 885,580 total new hires. However, there are some consistency questions with the treatment of negative change in certain occupations in this total. When summed individually over all 740 individual occupations, total new hires are estimated to be closer to 913,500. While these are ten year aggregates, it may be simpler to divide by ten and use this figure as an annual number. This implies there will be about 91,350 total new hires each year. Table 5 shows the results for the top 25 fastest growing occupations. Except for one or two occupations, the majority of high growth fields are in health care or technology.

**Table 5**  
**Top 25 Fastest Growing Occupations**  
**2009 through 2019**

<b>Occupation Title</b>	<b>2009 Employment</b>	<b>2019 Employment</b>	<b>Percent Change</b>	<b>Total Change</b>	<b>Replacement Hires</b>	<b>Total Hires</b>
Biomedical Engineers	805	1,422	76.6	617	170	787
Personal and Home Care Aides	38,122	59,369	55.7	21,247	4,760	26,007
Skin Care Specialists	674	1,004	49.0	330	100	430
Physician Assistants	1,352	1,940	43.5	588	250	838
Home Health Aides	37,908	53,834	42.0	15,926	3,770	19,696
Biochemists and Biophysicists	301	424	40.9	123	100	223
Athletic Trainers	225	316	40.4	91	80	171
Network Systems and Data Communications Analysts	5,879	8,250	40.3	2,371	1,060	3,431
Financial Examiners	905	1,263	39.6	358	160	518
Medical Scientists, Except Epidemiologists	1,807	2,490	37.8	683	370	1,053
Veterinary Technologists and Technicians	1,803	2,485	37.8	682	460	1,142
Other Personal Care and Service Workers	76,656	103,020	34.4	26,364	14,670	41,034
Veterinarians	1,314	1,758	33.8	444	230	674
Radiation Therapists	197	261	32.5	64	40	104
Self-Enrichment Education Teachers	4,380	5,776	31.9	1,396	670	2,066
Cardiovascular Technologists and Technicians	766	1,010	31.9	244	110	354
Dental Hygienists	4,088	5,365	31.2	1,277	830	2,107
Dental Assistants	5,336	6,976	30.7	1,640	1,000	2,640
Personal Financial Advisors	2,158	2,796	29.6	638	230	868
Medical Assistants	7,327	9,498	29.6	2,171	820	2,991
Nursing, Psychiatric, and Home Health Aides	69,873	90,146	29.0	20,273	6,960	27,233
Compliance Officers, Except Agriculture and Construction	4,340	5,568	28.3	1,228	460	1,688
Pharmacy Technicians	6,939	8,893	28.2	1,954	1,750	3,704
Surgical Technologists	1,825	2,332	27.8	507	460	967
Healthcare Support Occupations	97,854	124,752	27.5	26,898	10,580	37,478

<sup>2</sup> Details for all occupations can be found at  
<http://www.positivelyminnesota.com/apps/lmi/projections/Results.aspx?dataset=1&geog=2701000000&code=>

## **Educational Requirements Based on Occupational Demand**

The occupational demand information is useful to higher education institutions not only for aligning programs with potential demand; it can also be used in an aggregate sense to determine educational needs of the higher education system. The Bureau of Labor Statistics (BLS) uses two approaches to estimate education needs from occupational data. The first is a category system where BLS identifies 11 education or training categories that describe the most significant education or training pathway to employment for each occupation. BLS economists assign occupations to categories on the basis of analyses of qualitative and quantitative information. For example, a retail salesperson may need no more than a high school diploma while a surgeon clearly requires a medical degree. Some jobs need substantial on the job training. Different levels of education or training implied by different skill requirements can be associated with each occupation.<sup>3</sup>

The second approach is to measure educational attainment data from the ACS. These data present the percent distribution of workers currently employed in an occupation, broken down by their highest level of education attained. The educational attainment distributions allow data users to better discern whether there are multiple education or training possibilities. For example, because 87 percent of speech-language pathologists have at least a master's degree, it is clear that a getting a master's degree is the most significant source of training in becoming a speech-language pathologist. However, educational attainment data for other occupations may be more varied; for example, 29 percent of computer support specialists have some college, but no degree; 16 percent have an associate degree; and 33 percent have a bachelor's degree. The educational attainment distribution for computer support specialists suggests that there may be more than one way to become fully qualified for this occupation. The data show the highest level of education the survey respondent has attained, which is not necessarily the level of education required for the occupation.

BLS provides data that matches individual's education attainment and occupation for 2006, 2007 and 2008. By way of example, Table 6 shows this measure for one occupation, chief executives and for all occupations. The table demonstrates a number of facts. For instance, in 2008, 38.6 percent of chief executives across the country had a least a bachelor's degree while 19 percent had a Masters and 6.2 percent a doctorate or professional degree. Surprisingly, there were some chief executives without even a high school diploma although self-made people who lead their own enterprise are not unheard of in this country. Chief executives clearly tend to posses higher levels of education than the average occupation.

The second approach is used in this study. Although there are some disadvantages because the ACS is a survey, the strengths of the approach outweigh these issues. These educational requirements can be applied to each occupation to determine the number of associate degrees, bachelor degrees and so on that must be available to meet the labor force requirements of the economy. By simply summing across all occupations we can determine the totals for each degree level by 2019.

One problem with the data is that it does not detail projections for certificates. BLS views these projections as minimum requirements for entry into an occupation. Certificates are viewed as a means to advance within an occupation.

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<sup>3</sup> This methodology was changed December 6, 2011. This change does not impact this analysis.

**Table 6**  
**Educational Attainment in 2008 for Chief Executives**  
**And All Occupations**

Occupation	Educational Attainment Percent Distributions						
	Less than high school diploma	High school diploma or equivalent	Some college, no degree	Associate's degree	Bachelor's degree	Master's degree	Doctoral or professional degree
Chief executives	1.8%	11.9%	16.9%	5.7%	38.6%	19.0%	6.2%
BLS Educational Distribution	10.0%	27.2%	21.2%	8.8%	20.6%	8.3%	3.8%

If we assume that the educational attainment levels in 2019 will remain the same as observed in 2008, we can simply apply these percentages against the projected total hire numbers by occupation for 2019 and determine the several levels of educational training required in the economy. As the economy shifts to higher technology based industries, this approach will reflect the increased need for a higher skilled work force. The results of this exercise for all occupations are shown in Table 7. Again, for these purposes, we have simply divided the numbers by 10 to provide an annual perspective. This table indicates that of the 91,350 new hires each year through 2019, 19,995 will require some college, 8,318 will require at least an associate's degree and 17,564 will require at least a bachelor's degree. Since a BA is a requirement to enter graduate levels of education, a second perspective on demand is to add together the number for bachelor's, master's and doctorate or professional degrees to create an alternative measure of what is needed at the BA level. This total is 27,345 annually.

**Table 7**  
**Projected Annual Educational Requirements Associated with Total New Job Openings**

Less than high school diploma	High school diploma or equivalent	Some college, no degree	Associate's degree	Bachelor's degree	Master's degree	Doctoral or professional degree	Total
9,778	25,915	19,995	8,318	17,564	6,709	3,071	91,351

The major question for institutions of higher education and policy makers planning for the future is, how do these numbers for annual projections compare against the graduates produced in Minnesota each year? Table 8 is from OHE's web site showing degrees awarded in Minnesota for the last 11 years. The definitions are somewhat different than those used by BLS, but they are close enough to draw some general conclusions. Based on the BLS estimates of educational attainment needs, it appears that the state in

2010 more than meets the needs for associate and bachelor degrees (even at the 27,345 figure cited earlier). If we roughly equate certificates with some college but no degree then the state is under-producing certificates.

**Table 8**  
**Degrees Awarded in Minnesota**

<b>Academic Year</b>	<b>Certificates below</b>		<b>Doctorate (research and professional)</b>		
	<b>Bachelor's</b>	<b>Associates</b>	<b>Bachelor's</b>	<b>Master's</b>	
2000	12,702	11,045	23,181	7,797	2,402
2001	12,128	10,910	23,261	8,096	2,543
2002	12,396	11,860	24,554	8,518	2,394
2003	13,107	13,320	25,789	9,323	2,537
2004	14,896	14,209	27,337	11,433	2,691
2005	14,094	15,469	28,275	13,052	2,998
2006	15,086	15,125	28,911	15,188	3,357
2007	14,695	15,825	29,633	16,387	3,887
2008	13,713	16,601	30,388	18,012	3,886
2009	14,630	17,100	31,278	19,186	3,874
2010	15,938	18,468	31,963	21,015	4,173

### **The Georgetown Critique**

Anthony Carnevale and others at the Georgetown Center on Education and Workforce, in a 2010 study, offered a number of critiques of the approach used by BLS. Carnevale asserts that BLS underestimates educational requirements because it essentially holds the education attainment distribution fixed. He notes that the economy is becoming more skill-based so that within each occupation people will need more education to meet the demands of the economy. He cites historical trends to this effect, trends that BLS essentially ignores. Carnevale attempts to address this by using two different projection techniques to change the percentages. He reported that Minnesota was near the top of the country in education needs.

Table 9 below brings three different approaches to measure educational attainment needs together. The first line shows the distribution used above from BLS. The second line shows the educational attainment for employed people ages 25 and above in Minnesota from the three-year 2007 through 2009 ACS sample. The third line shows the Georgetown estimates. Both the Minnesota ACS experience and the Georgetown numbers suggest higher levels of education, especially in associate's degrees and bachelor's degrees than does BLS. The ACS data also shows much lower numbers for Minnesota for less than a high school diploma.

**Table 9**  
**Comparison of BLS and Georgetown Estimates**  
**for Educational Attainment Distribution**

All Occupations	Educational Attainment Percent Distributions						
	Less than high school diploma	High school diploma or equivalent	Some college, no degree	Associate's degree	Bachelor's degree	Master's degree	Doctoral or professional degree
BLS Educational Distribution	10.0%	27.2%	21.2%	8.8%	20.6%	8.3%	3.8%
Minnesota ACS 2007-2009	1.1%	25.1%	24.0%	11.9%	25.7%	8.4%	3.9%
Georgetown Estimates	6.0%	23.0%	21.0%	13.0%	27.0%	9.0%	

We can apply the Georgetown percentages in a general way - across all occupations - and determine the impact on the number of associate's and bachelor's degrees that need to be produced. Table 10 shows the results of this exercise. The largest change is in the number of associate's and bachelor's degrees that need to be produced each year. These figures are higher than the BLS numbers but still within the levels being produced in the state today. In 2010, the state produced 18,468 associate's degrees whereas the Georgetown data suggests about 11,600 annually. If we add bachelor's, master's and doctoral or professional degrees from the Georgetown percentages together we have a projected need of 33,205, or a bit more than was produced in 2010.

**Table 10**  
**Projected Annual Educational Requirements Associated with Total New Job Openings**  
**Using Georgetown Percentages**

Source	Educational Attainment Distributions						
	Less than high school diploma	High school diploma or equivalent	Some college, no degree	Associate's degree	Bachelor's degree	Master's degree	Doctoral or professional degree
BLS Distribution	9,778	25,915	19,995	8,318	17,564	6,709	3,071
Georgetown Estimates	6,646	21,011	18,832	11,655	24,207	6,172	2,829

The purpose of this report is to provide background information for career colleges to plan and manage respective institutions and to create a context for the analysis of the economic impact of the sector. This is not the venue to decide the issue between the Bureau of Labor Statistics, DEED and the Georgetown Center. However, this is an important question for policy makers to consider.

## Program Inventory

### Introduction

MCCA institutions offer a variety of programs across a spectrum of study areas. At the same time there is a marked focus on business and health related programs. An inventory of these programs combined with data on the number of awards made by the institutions is presented in this section. In summary:

- MCCA institutions offers program in 15 of the 38 major program areas identified by the federal government
- MCCA institutions provided about 5.6 percent of degree wards in Minnesota in 2009-10.
- ISEEK reports that MCCA school offer courses in 356 different program areas.

### Program Data

There are two data sources used in this analysis. The first is ISEEK, a comprehensive career, education, and job resource location that provides information about these three related topics.<sup>4</sup> This organization undertakes workforce development and education projects, promotes a forum for discussion and provides funding for related projects. The ISEEK web site maintains a current list of programs offered at each post secondary institution in the state.

The second data source is the program completion data reported in IPEDS. This data includes total awards- a term defined as the sum of certificates, diplomas, associate's degrees, bachelor's degrees and graduate degrees. The data is for 2009-10 and is based on reported first majors. Completion data provides an important metric, especially in an environment of "gainful employment".

A simple list of programs would inform the discussion, but it is of limited usefulness. Combining both programs offered with degrees awarded creates a richer context for the actual operations of MCCA institutions. The ideal approach would be a direct link between awards and programs. Unfortunately, a crosswalk between program names used by ISEEK and the IPED's data for each institution is not available.

There are two parts contained directly in this section. The first is a summary of completion data reported by institutions aligned by general program areas. The second is a more detailed list of programs that uses the completion data to identify the focus of MCCA institutions across programs. A third part, located in the appendix, is a complete list of programs by award level identified for each of the MCCA schools.

### Program Summary

Table 11 is a list of total completions of awards conferred by all program using the 2010 Classification of Instructional Programs (CIP) for all award levels.

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<sup>4</sup> See <http://www.iseek.org/>



**Table 11**  
**Total Awards for 2009-10 for MCCA Institutions by Major CIP Code**

<b>IPEDS Completion General Program Area</b>	<b>Total Degrees and Certificates</b>	<b>Percent of Total</b>
Agriculture, Agriculture Operations and Related Sciences	-	
Natural Resources and Conservation	-	
Architecture and Related Services	-	
Area, Ethnic, Cultural, Gender, and Group Studies	-	
Communication, Journalism, and Related Programs	126	2.4%
Communications Technologies/Technicians and Support Services	165	3.2%
Computer and Information Sciences and Support Services	386	7.4%
Personal and Culinary Services	476	9.1%
Education	72	1.4%
Engineering	46	0.9%
Engineering Technologies and Engineering-related Fields	128	2.4%
Foreign Languages, Literatures, and Linguistics	-	
Family and Consumer Sciences/Human Sciences	26	0.5%
Legal Professions and Studies	255	4.9%
English Language and Literature/Letters	-	
Liberal Arts and Sciences, General Studies and Humanities	-	
Library Science	-	
Biological and Biomedical Sciences	-	
Mathematics and Statistics	-	
Military Technologies and Applied Sciences	-	
Multi/Interdisciplinary Studies	-	
Parks, Recreation, Leisure and Fitness Studies	37	0.7%
Philosophy and Religious Studies	-	
Theology and Religious Vocations	-	
Physical Sciences	-	
Science Technologies/Technicians	-	
Psychology	-	
Homeland Security, Law Enforcement, Firefighting, and Related Protective Service	220	4.2%
Public Administration and Social Service Professions	10	0.2%
Social Sciences	-	
Construction Trades	-	
Mechanic and Repair Technologies/Technicians	-	
Precision Production	-	
Transportation and Materials Moving	7	0.1%
Visual and Performing Arts	475	9.1%
Health Professions and Related Programs	1,480	28.3%
Business, Management, Marketing, and Related Support Services	1,327	25.3%
History	-	
<b>Total</b>	<b>5,236</b>	<b>100.0%</b>

The list identifies two important facts. First, it provides program areas where MCCA schools focus their offerings and generate graduates. The totals shown are from 2009-10 completions. The 5,236 awards to MCCA students is about 5.6% of the 93,595 awards by all reporting institutions in the state in that year

Second, it provides a broad list of program areas where MCCA institutions do not have an academic presence, i.e., the larger market of potential academic presence. The business model used by career colleges direct the types of programs offered, so it is not surprising that there are many areas where MCCA institutions do not offer programs. In those areas where programs are offered, over 29 percent fall in health related fields with another 25 percent in business fields. These are followed by Personal and Culinary Services, Visual and Performing Arts and Computer and Information Sciences.

### ***Award Summary***

Table 12 shows in more detail the number of awards by general area for 2009-10 for each institution. The table only includes programs where there were awards made in that year. Institutions with multiple campuses have been combined. This refines the focus of programs at an institutional level. It identifies the larger schools (Minnesota School of Business, Rasmussen); the breadth (or in some cases the focus such as La Cordon Bleu) of programs; and the various institutions that offer competing programs.

**Table 12**  
**Number of Awards by General CIP Area by MCCA Institution**  
**2009-10**

<b>General Program Area</b>	<i>Academy College</i>	<i>Brown College</i>	<i>DeVry University</i>	<i>Duluth Business University</i>	<i>Globe</i>	<i>Herzing University</i>	<i>Institute of Production and Recording</i>	<i>ITT Technical Institute</i>	<i>Le Cordon Bleu College of Culinary Arts</i>	<i>McNally Smith College of Music</i>	<i>Minneapolis Business College</i>	<i>Minnesota School of Business</i>	<i>National American University</i>	<i>Northwest Technical Institute</i>	<i>Rasmussen College</i>	<i>The Art Institutes Intern</i>	<i>Total</i>
Communication, Journalism, and Related Programs	-	80	-	-	-	-	-	-	-	-	28	-	-	-	-	18	126
Communications Technologies/Technicians and Support Services	-	-	-	-	-	-	106	7	-	-	28	-	-	-	-	24	165
Computer and Information Sciences and Support Services	-	61	9	-	12	-	-	111	-	-	21	89	10	-	28	45	386
Personal and Culinary Services	-	-	-	-	-	-	-	371	-	-	-	-	-	-	-	105	476
Education	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72	-	72
Engineering	-	-	-	-	-	-	-	-	46	-	-	-	-	-	-	-	46
Engineering Technologies and Engineering-related Fields	-	-	-	-	-	6	-	51	-	-	-	-	-	71	-	-	128
Family and Consumer Sciences/Human Sciences	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	-	26
Legal Professions and Studies	-	-	-	4	29	-	-	-	-	17	138	14	-	-	53	-	255
Parks, Recreation, Leisure and Fitness Studies	-	-	-	-	10	-	-	-	-	-	27	-	-	-	-	-	37
Homeland Security, Law Enforcement, Firefighting, and Related Protective Service	-	24	-	-	5	-	-	-	-	-	50	-	-	-	141	-	220
Public Administration and Social Service	-	-	-	7	-	-	-	-	-	-	-	-	-	-	3	-	10
Transportation and Materials Moving	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Visual and Performing Arts	11	159	-	11	-	-	21	5	-	89	4	11	-	-	-	164	475
Health Professions and Related Programs	14	-	-	66	80	110	-	-	-	115	461	39	-	-	595	-	1,480
Business, Management, Marketing, and Related Support Services	18	16	72	7	89	2	-	-	-	-	81	553	68	-	411	10	1,327
<b>Total</b>	50	340	81	95	225	118	127	174	371	135	238	1,385	131	71	1,329	366	5,236

### ***Program Detail***

Appendix 2 contains a table that drills down the data to a further level of detail. The data shows detail for each separate program by institution and by level of award offered. This table is based on the ISEEK data and, while very useful, contains both advantages and some problems. Since it is centrally collected there is some consistency in the reporting methods. There is a concerted effort on the part of staff to keep the date current. Finally, the data is directed to the same population served by MCCA institutions. However, in some cases the program labels suggest a distinction when one may not exist. For instance, a “Business Administration” program broadly defined may offer the very same courses as a “Business Administration- Accounting” program. Also, some minor errors with the data have been observed in the compilation in this form.

# Student Demographic, Socio-Economic and Academic Characteristics

## Introduction

Student demographic, socio-economic and academic characteristics reveal important information about how post secondary institutions operate. This section presents background data on students in the for-profit sector and comparisons across all sectors of higher education in Minnesota. The data for this analysis is from the 2008 National Post Secondary Student Aid Study (NPSAS). Minnesota was fortunate to be one of the six states over-sampled that year, a fact that provides an incredibly rich data set for analysis. Although MCCA schools cannot be identified separately, the data measuring the for-profit sector should still be relatively reflective of the member institutions. Also, while the survey is somewhat dated, the relationship between the sectors is unlikely to change quickly, so conclusions remain valid.

The information is presented in two parts. The first is summary and provides the share of total student population that attend for-profit institutions for 21 different variables. This approach measures information *across* sectors and is used since it mirrors presentations used at the national level. This summary approach, while useful, doesn't fully reflect the conditions *within* the for-profit sector. The second section is a more detailed examination of a smaller number of key variables that expand the examination of for-profit institutions.

## Summary Discussion

There are 21 different variables presented describing students at for-profit institutions. A brief synopsis of each variable is provided directly in the text. The full data table is found in Appendix 3. This synopsis together with the table allows the reader to quickly grasp the key demographic, social-economic and academic characteristics of these institutions. In many cases similar student conditions are measured by different variables which in turn reinforce the relationships. For example, if students tend to be full-time employed (work intensity) they also tend to work more (work hours per week) and make more money (income).

The first line in Appendix 3 shows the total distribution of students by sector. For example, in 2008, about 8.4 percent of students attended for-profit schools. This figure is the benchmark for each of the other demographic variables. If a variable percentage is larger than the 8.4 percent, the characteristic measured by that variable is more prevalent at for-profit schools. For example, the first variable in the list is gender. The percentage at for-profit schools is 10.5 percent indicating the population in for-profit schools tends to be more female than male, i.e., the percent of female is above the overall proportion of 8.4. To ease identification, the percentage number is boxed for each variable where this is true. Finally, since NPSAS is a sample, the data comes with some level of uncertainty. Wherever a data point has either a single or double exclamation point, confidence intervals are larger and interpretation should be done with caution.

## Variable Synopsis

- The student population at for-profit schools tends to be more female. The for-profit schools have 8.4 % of the population but 10.0 % of the female attendees in the state.

- The student population contains a larger share of people indicating in the NPSAS survey that they possess some type of disability.
- The student population at for-profit schools is significantly more likely to have dependent children.
- Students are much more likely to be independent, again often with children.
- Students with dependent children are more likely to be single parents.
- Students generally are also less likely to be single or divorced
- The student population at for-profit schools is less likely to be white and much more likely to be black or Hispanic.
- These students tend to be from families where parents, relatively speaking, are not as well educated. The detailed discussion explores first generation students at for-profit schools.
- For-profit schools have a significantly larger veteran population.
- The student population is relatively older, more typically 25 years and up.
- The student population is more likely to attend part time, part year or a combination rather than full time or full year.
- The student population is somewhat more likely to have larger credit card debt.
- There is a larger share of “income as an independent student,” in large part since there are more independent students at these schools.
- The parent income for dependent students is at the low end. This is explored below.
- The student population is more likely to be enrolled in a certificate or associate program. Although many programs are offered at the BA level, enrollment tends to be in programs less than four years.
- The student population is more likely to be in business or health programs. This confirms the information presented in the program inventory.
- The primary academic goal indicated by students is a certificate, associate’s degree and to some extent a bachelor’s degree.
- Students are more likely to consider themselves to be primarily employed full time and attending school part time.
- As employees first, these students are more likely to work three quarters or full time.
- Because they work longer hours, job earnings tend to be higher than for students in other sectors.
- Similarly, overall income tends to be higher for these students.

### ***Detailed Discussion***

The summary approach presented above does not reflect the conditions *within* the for-profit sector. This section is a more detailed examination of a smaller number of key variables that expands the description of for-profit institutions. These variables include race, income, parental education and student's debt and are considered key since they address some of the central issues in higher education policy. Since NPSAS is a sample the data comes with some level of uncertainty. Where ever a data point has either a single or double exclamation point confidence intervals are wider and interpretation should be done with caution.

### ***Racial Background***

Access to higher education among various racial groups is an important issue in higher education. Table 13 shows a more detailed perspective on attendance by race across the various sectors. In Minnesota in 2008, nearly 62 percent of students attending post secondary institutions were white. The two largest minority groups were black and Hispanic students, both representing about 14 percent of the population. Asian students made of almost 6 percent. The remaining share is spread among other racially identified groups.

In general, the public two year and four year non-doctorate institutions in the state have enrollment patterns that reflect the overall percentages of the population. This is not surprising since most students attending college attend these schools. Four year doctorate public institutions and non-profit institutions have larger white and Asian populations and smaller black and Hispanic populations. For-profit schools serve a higher proportion of minority students than any other sector. Less than one-half of students are white; this is unlike any other sector all of which enroll more than 60 percent white students. Black students represent 26 percent and Hispanic students almost 17 percent of enrollment at for-profit schools.

**Table 13**  
**Racial Background of Students**  
**Percent of Enrollment by Sector**

	White	Black or African American	Hispanic or Latino	Asian	American Indian or Alaska Native	Native Hawaiian / other Pacific Islander	Other	More than one race	Total
Total Enrollment	61.8	14.0	14.1	5.9	0.8	0.7	0.3	2.4	100%
Institution sector									
Public 2-year	60.2	14.4	14.8	6.1	1.0	0.9	0.3	2.3	100%
Public 4-year nondoctorate	61.9	13.1	16.1	4.8	1.2	0.4	0.3	2.0	100%
Public 4-year doctorate	69.0	10.6	9.6	6.9	0.6	0.5	0.2	2.5	100%
Private not-for-profit 4-yr nondoctorate	67.7	13.1	12.1	3.7	0.4	0.7 !	0.3	2.1	100%
Private not-for-profit 4-year doctorate	67.8	10.2	11.0	7.5	0.2	0.5 !	0.3	2.4	100%
Private for-profit 2 years or more	48.9	26.1	16.6	3.4	1.1 !	0.7 !	0.4 !	2.7	100%
Attended more than one institution	61.2	12.2	14.4	7.7	0.7	0.8	0.2	2.8	100%

### Family Income

Research indicates that family income is a key to the success of a student attending post secondary education. Higher income typically means more access, choice and academic success. Family income may differ significantly between dependent students who rely on parents and independent students who have only their own resources at hand. Table 14 shows family income for both groups. The variable is broken down by sector and into various percentiles.

**Table 14**  
**Family Income by Dependent Status, Sector and Percentile**

<b>Dependent Parent Income by Sector and Percentile</b>					
	<b>10th %</b>	<b>25th %</b>	<b>50th %</b>	<b>75th %</b>	<b>90th %</b>
All Sectors	25,942	44,434	73,811	108,480	141,600
<u>Institution sector</u>					
Public Two-year	20,850	38,802	62,093	93,361	126,449
Public Four-year	27,084	48,573	83,767	111,993	144,000
Private Not-for-profit Four-year	28,744	51,143	83,890	121,918	177,623
Private For-profit Two years or more	18,295	32,379	56,851	90,048	114,348
Attended more than one institution	23,732	45,636	67,329	101,458	146,354
<b>Independent Student and Spouse Income by Sector and Percentile</b>					
	<b>10th %</b>	<b>25th %</b>	<b>50th %</b>	<b>75th %</b>	<b>90th %</b>
All Sectors	5,885	14,942	28,832	52,581	83,451
<u>Institution sector</u>					
Public Two-year	6,375	16,150	29,760	52,793	87,371
Public Four-year	2,400 !!	8,572 !	21,767 !	47,142	68,280
Private Not-for-profit Four-year	2,999 !!	15,422.0 !	34,811	68,061	91,505
Private For-profit Two years or more	10,552	16,092	27,987	45,791	73,996
Attended more than one institution	7,670	15,429	29,119	52,800	83,451

The top half of the table shows family income for dependent students. Family income for students at for-profit institutions for these students is the lowest at all percentile levels. At the median level of \$56,851, income in that sector is only 77 percent of the level for all sectors at \$73,811. Based on NPSAS data, for-profit schools serve the lowest income families attending higher education institutions in the state.

The story is a bit more complicated for independent students. As indicated above, the student population in for-profit schools tends to be more independent than dependent. The bottom half of the table shows

family income for independent students and their spouses. At the bottom end of the income spectrum, students in the for-profit sector earn the most at \$10,552, not quite double the amount for all students at \$5,885 (these numbers are a bit confounded by data at the four year institutions which is not very accurate). This result is not surprising given the fact that students attending for-profit schools simply work more hours in a week while attending school. This dominance disappears in higher income levels. At the median level, independent students at for-profit institutions make less than the median for all students. The spread between for-profit students and all other independent students is greater at incomes above the median. This implies that while students at for-profit schools work more and earn more, they are not making a lot of money at the high end. For independent students, for-profit institutions serve those at the low income levels.

### Family Education

A parent's education can be a strong determinant of the educational path of a child. Highly educated parents tend to beget highly educated children. With demographic patterns shifting towards minority populations, political leaders have focused on the growing need for first generation children to enroll in and graduate from higher education. Table 15 shows the education background of parents by sector. The general pattern is one expected. Students in four year institutions tend to come from families where parents possess a BA, Masters or above. This is highlighted in the boxed area on the right.

**Table 15**  
**Parent's Highest Education**  
**Percent of Total Enrollment by Sector and Level of Education**

	Did not complete high school	High school diploma or equivalent	Vocational or technical training	Less than two years of college	Associate's degree	2 or more years of college but no degree	Bachelor's degree	Master's degree	First- professional degree	Doctoral degree
Total	3.6	21.6	8.1	8.4	8.5	4.5	23.8	11.0	4.5	3.3
Institution sector										
Public 2-year	5.4	27.4	10.0	9.0	9.0	4.4	18.5	8.6	1.9	1.6
Public 4-year nondoctorate	1.9	22.5	10.7	7.4	10.3	4.6	26.4	11.5	1.6	1.9
Public 4-year doctorate	1.3 !!	10.8	4.5 !	7.9	8.1 !	6.2	32.7	12.5 !	9.7 !!	5.7
Private Non-profit 4-yr nondoctorate	1.7	11.3	5.3	5.5	3.7	3.9 !	31.9	16.2	11.4	9.0 !
Private Non-profit 4-year doctorate	4.7 !!	14.6	8.7	6.9 !	9.2	2.7 !	25.9	16.0	4.9	3.8
Private For-profit 2 years or more	4.5 !	37.0	8.1	8.7	8.7	3.7	14.4	7.7	0.6 !	2.2
Attended more than one institution	3.0	18.0	7.0	10.8	9.0	3.6	25.2	13.3	5.9 !	2.2 !



The most striking relationship in the table is shown in the smaller box on the lower left. Disregarding the uncertainty in the figure of 4.5 percent for parents of students in for-profit schools that did not finish high school, if one adds that number to the 37 percent for parents with only a high school degree, over 41 percent of these students are first generation. These parents have never entered a post secondary institution. The next closest figure would be about 33 percent at public two year institutions.

### Cumulative Student Debt

A major issue in higher education is the level of debt student face upon graduation from college. The last variable in this section examines cumulative debt for students. The NPSAS data allows us to measure this debt load for students attending schools in the various sectors. Table 16 shows cumulative debt by sector for a variety of percentile levels. At the lowest level, total borrowing in the for-profit sector is significantly higher than for students in the other sectors. As one moves up through the range of borrowing, public two year schools remain lower than all other institutions. Students at the highest levels of borrowing at non-profit schools tend to carry the most debt.

**Table 16**  
**Cumulative Amount Borrowed for Undergraduate**

	<b>10th %</b>	<b>25th %</b>	<b>50th %</b>	<b>75th %</b>	<b>90th %</b>
Total	2,750	5,137	10,964	19,985	32,206
Institution sector (with multiple)					
Public 2-year	2,000	3,500	7,366	13,410	21,981
Public 4-year nondoctorate	3,485	6,908	14,217	21,579	34,863
Public 4-year doctorate	2,600	5,500.0 !	10,966	20,000	35,000
Private not-for-profit 4-yr nondoctorate	3,500.0 !	7,500	15,689	26,125	40,000
Private not-for-profit 4-year doctorate	3,750.0 !	9,500	15,400	24,284	39,000
Private for-profit 2 years or more	4,422	7,500	14,112	24,625	35,000
Attended more than one institution	3,500	6,459	12,703	20,000	31,450

## Returns to Post Secondary Education

### Introduction

This part of the study describes income differences and rates of return to post secondary education. It is a well established fact that people with higher levels of education on average make more income annually than those without this training. This annual difference leads to substantial cumulative differences in life-time earnings. Income data for Minnesota is described in the first part. Part two concerns rate of return estimates. Rate of return analysis is complicated and results from several studies are reported in this section.

### Education and Income Differences

Average wage earnings by educational attainment levels for Minnesota differ as shown in Table 17. The definition of income is important. Data for “wages,” a measure of income paid at a job, is used in the analysis. An alternative measure sometimes used in other studies is “earnings,” a concept that combines wages and self employment income. Wage information is the more relevant measure for career colleges since graduates are centrally concerned with obtaining a job upon completion.

Data is shown for two different population groups- the total population and a more limited age cohort of working people ages 19 to 40.

**Table 17**  
**Wage Levels by Educational Attainment**

	Total Population		Working Population Ages 19 through 40	
	Population	Average Wage	Population	Average Wage
Total	5,229,330	\$ 22,411	1,213,156	\$ 35,405
12th grade, no diploma	61,096	13,044	13,832	20,846
High school graduate	1,110,665	18,230	253,588	24,808
Some college, but less than 1 year	296,051	22,170	83,328	25,410
One or more years of college, no degree	690,317	24,023	252,372	25,044
Associate's degree	364,498	32,512	146,405	34,252
Bachelor's degree	790,823	44,252	309,710	48,418
Master's degree	246,549	55,558	74,068	61,497
Professional school degree	69,982	101,821	19,761	94,050
Doctorate degree	37,481	70,891	7,867	67,897
Difference between High School and Associate's		14,283		9,444
Lifetime difference		606,263		375,382
Difference between High School and Bachelor's		26,023		23,610
Lifetime difference		1,046,054		915,998

Total populations figures are typically used in standard analysis. But important distinctions can be lost in these averages. The second population group is presented since it generally reflects a particular demographic group served by MCCA institutions. In addition, the specific identification of working adults is important since 2007 through 2009 was a recessionary period.

Annual and lifetime differences between a high school graduate and an associate's degree and bachelor's degree respectively are also shown. Lifetime figures in the table are simply the annual figures multiplied by the relevant number of years assuming no growth in income. Under this simple but straightforward approach, a person with an AA would make about \$375,000 more than one with only a high school degree over a lifetime. The same figure for a BA is about 900,000.

These figures reflect the standard approach to this type of analysis by assuming flat growth rates. However, it tends to underestimate the true difference between high school and post-secondary education over a lifetime. Real wages grow over time and those with higher incomes will have greater dollar growth since they are starting from a larger base. Using projected real wage growth rates from the Congressional Budget Office's Long Term Budget report, further analysis results in an AA difference of \$570,000 and a BA difference of \$1.4 million over a lifetime.<sup>5</sup> Both numbers are significantly higher than the simpler approach. These are real dollars that allow students to obtain a higher standard of living.

### ***Rate of Return***

A rate of return estimate indicates how much income is derived from a particular investment expressed in percentage terms. Done correctly, this requires a complicated analysis that is beyond the scope of this project. Rate of return is more than simply subtracting the cost of education from lifetime income. However, there is substantial academic research published on this topic to draw upon. Pascarella and Terenzini indicate a personal rate of return of about 12 percent for a bachelor's degree. This estimate is in line with many other published papers.<sup>6</sup> Returns for two year degrees are subject to more debate, but a typical number used is an eight percent rate of return.<sup>7</sup>

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<sup>5</sup> CBO's 2011 Long-Term Budget Outlook, Congressional Budget Office, June 22, 2011

<sup>6</sup> How College Affects Students, Volume 2, Ernest Pascarella and Patrick Terenzini, Jossey Bass, 2005

<sup>7</sup> The Education Gospel, The Economic Power of Schooling, W Norton Grubb and Marvin Lazerson, Harvard Press, 2004; Learning and Earning in the Middle, Part I: National Studies of Pre-baccalaureate Education; W. Norton Grubb

# Economic Impact Analysis

## Introduction

This final section of the study describes the impact of career colleges on the Minnesota economy. There are two major sources of this impact, current economic activity and the change in income from the investment in human capital.

Career colleges are a part of the larger higher education industry in the state that includes the University of Minnesota, the MnSCU system and non-profit institutions. The delivery of education services, the heart of what these institutions do every day, generates economic activity. Teachers are hired, wages are paid, building are heated in the winter and cooled in the summer, books are purchased, and so on. These operations create a primary impact on the economy. They also create secondary impacts as firms that provide goods and services to institutions purchase their own set of inputs, hire people, pay wages, and so on. This new income creates a third level of economic activity as consumer goods are purchased, homes are built, and so on. This spending and re-spending creates a multiplier effect, a very important concept when determining the total economic impact of career colleges.

Career colleges have a second major impact on the economy because they help students improve their skills and knowledge, build their own personal human capital, and, as we saw in the prior section, earn more income annually. There is, on average, a positive rate of return to students that leads to higher life-time earnings. These higher earnings also have a multiplier impact on the economy, lead to higher consumption and increased taxes for state and local governments.

This section of the report is in two parts. The first section describes the economic impact on output, earnings, value added and employment in the state that are attributable to career colleges. The second section describes the impact on the economy of the investment in human capital.

## Impact Summary

The focal point of this report is the evaluation of the economic impact on the state of Minnesota attributable to career colleges. Economic impact takes two forms, the current activity of the institutions and equally important, the impact of the schools on the development of human capital and the increase in earnings for students. This activity has an impact on state and local taxes. The major findings of this analysis are:

- Career colleges account for about \$1.309 billion annually in total output in the state as measured by income. This includes \$595 million directly and \$714 million indirectly after all impacts are taken into account.
- Career colleges directly and indirectly produce about 14,900 jobs annually in the state.
- Career colleges directly and indirectly produce almost \$450 million in earnings annually in the state.
- These earnings produce about \$21 million annually in state income tax revenue. They produce an additional \$9.0 million in sales taxes.
- Career colleges directly and indirectly produce nearly \$750 million in value added annually in the state.

- Career colleges pay about \$7.6 million annually in property taxes to state and local government. They provide an addition \$4.3 million annually in other state taxes.
- Summing the various tax estimates results in total state and local taxes of about \$42 million annually.
- MCCA Institutions produce about 66 percent, or two thirds of the output in the state. These institutions likewise are responsible for 66 percent of the jobs, earnings and other measures.
- Exploratory analysis suggests each year new graduates of career colleges earn about \$300 million more in income than they would had they not gone on to receive a post secondary degree, This produces additional \$14 million in income tax revenue for the state.

## **Economic Impact Analysis**

This part of the report describes the direct economic impact of career colleges on the state. The source data is presented, the multiplier concept and source is described, and related tax impacts are discussed.

### ***The Data***

Economic activity can be measured in a number of ways. This analysis identifies four key metrics-output, earning, employment and value added. The first metric is total output, typically measured in impact studies by sales. In the case of career colleges, sales and institutional income are very similar concepts. Institutions sell educational services to students and are paid in the form of tuition dollars or substitute revenue from state and federal government.

Post secondary institutions that meet certain criteria are required to report a variety of data to the federal government under the Integrated Postsecondary Education Data System (IPEDS). IPEDS is a rich data set that provides information on enrollment, employment, student costs, graduation levels and revenue and expenditures at individual institutions. This serves as the primary source of output data for the study.

IPEDS provides all of the information needed for MCCA member institutions. This reported data has been confirmed by the institutions. For a variety of reasons a number of other career colleges do not provide revenue data to IPEDS. These tend to be either very small schools (very low enrollment) or schools with a very specialized curriculum (for example Aviva College of Midwifery and Maternal Child Health or the Cutting Edge Pet Grooming School). All career colleges in Minnesota must be either licensed or registered with the state and annually file financial information with the Office of Higher Education. The Office has provided aggregate income data for the largest institutions that do not file information with IPEDS. Career institutions in the state directly account for approximately \$595 million in output annually in the state. Of this, about \$547 million is reported through IPEDS and an additional \$48 million is from OHE reports. The combined data provides a fairly complete description of output of career colleges in the state.

### ***Multipliers***

Career institutions directly account for approximately \$595 million in output annually in the state. A complete picture of the impact would include not only this direct spending but also secondary, indirect spending in the economy created by this initial activity. The sum effect of this is referred to as a multip-

lier effect. For accurate estimates of economic impact, economic multipliers specifically estimated for the higher education sector in the state of Minnesota are needed. This specificity is important since the multiplier impact can vary for different industries and geographic locations.

Analysis of economic impact can utilize large regional economic models to measure total impact. These models may be well constructed and very elaborate. They are also expensive to construct and operate. A reasonable alternative exists that has been developed by the Bureau of Economic Analysis (BEA). This system has been in place for many years, used across a wide variety of applications and has proven credibility. The summary in the box below describes this system. Multipliers for output, earnings, employment and value added have been obtained from BEA for this project. These multipliers are specific to higher education in the state of Minnesota. They are referred to as Type II multipliers and capture the direct, indirect, and induced effects on the economy. Even though direct measures of employment, earnings and value added are not available, the multipliers shown can be used to estimate the impacts from the output data on these three metrics. They are estimated based on 2008 regional data so they are current with the other data used in the analysis. These are shown in Table 18.

**Table 18**  
**Economic Multipliers for Higher Education in Minnesota**

Output	2.2005
Earnings	.7552
Employment	25.0675
Value Added	1.2616

These multipliers have fairly straightforward interpretations. The output multiplier means that for every one million dollars in direct output in higher education, \$2.2 million in total output occurs in the economy. The earnings multiplier means that for every one million dollars in direct output in higher education, \$755,200 in total earnings occurs in the economy. The employment multiplier means that for every one million dollars in direct output in higher education, roughly 25 jobs are produced in the economy. The final multiplier for value added reflects a measure that is similar to gross domestic product. The value added multiplier means that for every million dollars in direct output in higher education, \$1.26 million in value added occurs in the economy.

#### **A Description of the RIMS II Multipliers**

Effective planning for public and private-sector projects and programs at the state and local levels requires a systematic analysis of the economic impacts of the projects and programs on affected regions. Systematic analysis of economic impacts must account for the inter-industry relationships within regions because these relationships largely determine how regional economies are likely to respond to project and program changes. Regional input-output multipliers, which account for inter-industry relationships within regions, are useful tools for regional economic impact analysis. In the 1970's, the Bureau of Economic Analysis (BEA) developed a method for estimating regional multipliers known as RIMS (Regional Industrial Multiplier System). Using RIMS II for impact analyses has several advantages. RIMS II multipliers can be estimated for any region composed of one or more counties and for any industry or group of industries in the

national input-output table. The cost of estimating regional multipliers is relatively low because of the accessibility of the main data sources for RIMS II. According to empirical tests, the estimates based on RIMS II are similar in magnitude to the estimates based on relatively expensive surveys. To effectively use the multipliers for impact analysis, users must provide geographically and industrially detailed information on the initial changes in output, earnings, or employment that are associated with the project or program under study. The multipliers can then be used to estimate the total impact of the project or program on regional output, earnings, or employment. RIMS II is widely used in both the public and private sector. In the public sector, for example, the Department of Defense uses RIMS II to estimate the regional impacts of military base closings, and state departments of transportation use RIMS II to estimate the regional impacts of airport construction and expansion. In the private sector, analysts, consultants, and economic development practitioners use RIMS II to estimate the regional impacts of a variety of projects, such as the development of theme parks and shopping malls.

### ***Economic Impact- Output, Earnings, Jobs and Value Added***

The determination of the economic impact is a simple matter of applying the multipliers to the income data obtained from IPEDS and OHE. Table 19 shows the results of this exercise.

**Table 19**  
**Total Economic Impact of Career Colleges on the Minnesota Economy**  
**(Millions of dollars)**

<b>Economic Metric</b>	<b>Direct</b>	<b>Indirect</b>	<b>Total</b>
Output	\$595	\$714	\$1,309
Employment			14,912
Earnings			\$ 450
Value Added			\$ 750

### ***Tax Impacts***

The earnings generated through the economic activity of career colleges produce income tax receipts for the state. The total earnings number after the multiplier effect is about \$450 million. Since this is an aggregate number, an average effective income tax rate can be applied to estimate annual income taxes attributable to career colleges. Information used in the November 2011 state forecast from the Department of Management and Budget reflects an average effective rate of 4.56 percent. Applying this to the earnings estimate results in approximately \$21 million in income tax revenue.<sup>8</sup>

<sup>8</sup> An average effective income tax rate for Minnesota for 2009 is determined by dividing total income tax liability by adjusted gross income for that year. This approach compensates for exemptions and other income deductions. This information is from the Minnesota Department of Management and Budget

The activity of career colleges also produces local property taxes and other state taxes. Property taxes are estimated using relationships between output and property taxes in national input-output accounts. This produced an estimate of annual property taxes paid of \$7.6 million. Property taxes paid by several MCCA institutions were identified through county web sites to determine the reasonableness of this number. This same national input-output approach was used to estimate other state tax revenue from production activities of \$4.3 million annually. This approach only used sales and insurance taxes so it is a bit conservative. Operations of career colleges may also lead to increased motor vehicle licenses, gas and other taxes.

In addition to taxes due to operations, earnings themselves lead to increased sales taxes. The 2011 tax incidence study produced by the Minnesota Department of Revenue estimates an effective tax rate at 2.0 percent at incomes of roughly \$45,000. The \$45,000 is used as a proxy for annual earnings implicit in the total earnings figure of \$450 million. Applying the 2.0 percent to this figure results in an increase in sales taxes of roughly \$9.0 million annually.

### **Income Produced from the Investment in Human Capital**

IPEDS reported over 8,000 students in 2009-10 graduated from all career colleges with a variety of degrees and certificates across a number of occupational fields. A key question is what are the employment and earnings experience of students as they leave *career colleges*? The analysis of student demographics in section five utilized the NPSAS data for Minnesota to broadly describe student characteristics. This data does not include information on either employment or earnings after graduation. However, another survey from the federal government, the Baccalaureate and Beyond Longitudinal Study, does provide information on jobs for each sector of higher education. The data is limited to students with four year degrees so it is an incomplete picture for career schools. In addition, the data is not Minnesota specific although regional data on the Upper Midwest is provided. If one assumes that regional data reasonably approximates the experience in Minnesota, some important information is available.<sup>9</sup>

As described in section five of the report, investment in post secondary education, on average, results in higher income over a person's lifetime. Although the data to fully measure this impact is not available, some preliminary information from available data on the impact for career college graduates in Minnesota is presented

### ***Employment and Income after Graduation***

The Baccalaureate and Beyond Longitudinal Study contains data for students graduating with a four-year degree in 2007-08. There is also a follow-up with those same students on earnings and employment in 2009. This information is shown in the two tables below.

Table 20 shows median income the year following graduation. This is 2009 earnings for a person graduating in 2008. The median income for all working graduates is \$31,190. The median for graduates

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<sup>9</sup> The Upper Midwest region includes data for the Great Lakes (IL IN MI OH WI) and the Plains (IA KS MN MO NE ND SD) states



from for-profit institutions is \$35,000 or more than 12 percent higher than the level for all students. In fact, for the region, income for students graduating from for-profit institutions is higher than any other sector. Clearly students leaving career colleges with four year degrees are doing well in the job market compared to their peers from other institutions.

**Table 20**  
**Median Income the Year Following Graduation by Sector**

	Median Income in 2009
Total	31,190
Institution sector in 2007-08	
Public 2-year	‡
Public 4-year non doctorate	31,000
Public 4-year doctorate	30,000
Private nonprofit 4-yr non doctorate	31,990
Private nonprofit 4-year doctorate	34,486
Private for-profit 2 years or more	35,000
Attended more than one institution	30,389

Table 21 concerns employment and enrollment the year following graduation. The data shown is a percent of the total for that sector. Of all graduates, 52.7 percent had a full time job and were not enrolled. The figure for for-profit schools was 62.2 percent, well above the total and again the highest among all sectors. Students in the other sectors did continue some enrollment patterns and working part time. This suggests they may have continued to either attend graduate school or other educational opportunities since jobs in 2009 were difficult to find. The other important data piece in the table is the percentage of students still looking for work. In this case a higher percentage of for-profit graduates were unemployed and not enrolled. Students that graduate from for-profit schools tend to enter the job market more aggressively than students in the other sectors.

**Table 21**  
**Employment and Enrollment Status by Sector**

Employment and Enrollment Status in 2009			
Percent of Total by Sector			
	One full-time job, not enrolled	One part-time job, enrolled	Unemployed, not enrolled
	(%)	(%)	(%)
Estimates			
Total	52.7	5.5	6.1
Institution sector in 2007-08			
Public 2-year	‡	‡	‡
Public 4-year non-doctorate	58.4	4.4	7
Public 4-year doctorate	51.1	6.8	5.9
Private nonprofit 4-yr non-doctorate	54.2	3.7	5.8
Private nonprofit 4-year doctorate	53.9	4	6.2
Private for-profit 2 years or more	62.2	0.7 !!	8.5 !
Attended more than one institution	40.7	8.0 !	4.9

### ***Income from Human Capital Investment***

Career college graduates in 2010 (and all previous years that are living and working in Minnesota) are enjoying a higher level of income and standard of living because of their investment in higher education. In order to measure the impact of this investment on income, data on employment and earnings for all graduates from career colleges living and working in Minnesota would be needed. The increased income for these graduates would be compared against likely incomes these students would earn if they still had only high school diplomas. Unfortunately, this data does not exist. However, it is a useful exercise to provide some very exploratory measures of this impact from the data that is available. Table 22 shows the results of this exploratory exercise.

Data on graduates of career schools is available from IPEDS from 2003 through 2010. For these purposes, the total number of degrees was reduced by 15 percent under the assumption that this was a fair assessment of people either not working due to economic conditions, personal choice or migration from the state. Data on the difference in income between a person with only a high school degree and one with a postsecondary degree was provided in section five of this report. The reduced number of graduates is multiplied by the income difference.

The results indicate that graduates of career colleges, for the time period shown in Minnesota, annually earn about \$300 million more than they would if they had only had a high school degree. This number is suggestive and subject to a number of the assumptions outlined. But clearly it is likely to underestimate the annual true figure since these institutions have been graduating students for decades and these students are still in the work force. As above this additional income increases income tax revenues. Using the same effective tax rate as above, state income taxes would be higher by about \$14 million. Since this is exploratory this figure is not included in the tax total above.

**Table 22**  
**Annual Income due to Investment in Degrees at Career Colleges**  
**Number of Reported Degrees**

<b>Year</b>	<b>Associate's</b>	<b>Bachelor's</b>	<b>Master's</b>	<b>Professional</b>
2003	1,990	177	36	38
2004	2,214	257	38	46
2005	2,629	370	66	39
2006	2,311	501	95	52
2007	2,487	574	126	42
2008	2,694	628	162	51
2009	2,614	742	193	-
2010	3,589	1,123	238	50
<b>Total</b>	20,528	4,372	954	318
<b>Total times .85</b>	17,449	3,716	811	270
<b>Income Difference</b>	9,444	23,610	36,689	69,243
<b>Total Incremental Income by Degree</b>	164,793,447	87,739,482	29,750,948	18,716,248
<b>Total Incremental Income across all Degree</b>				301,000,124

## **Appendix 1**

### **Summary of Background and Experience of New Pharos Consulting**

#### **Mark Misukanis, Ph. D.**

Dr. Mark Misukanis is a principle in New Pharos Consulting. He possesses over 32 years of experience working in numerous policy areas in state government including tax research, education spanning early childhood through postsecondary education, overall state budgeting covering the programs of every state agency and other policy areas such as economic development and commerce. He spent the first six years of his career in the Department of Revenue operating an extremely large economic model of the state (the REMI model contains literally thousands of equations) producing economic projections as well as simulating alternative policy options. This experience is utilized in the economic impact in this project. He spent 12 years as the fiscal and policy analyst for the education funding committee in the State Senate. In this position he worked on a number of education programs and developed numerous funding formulas. This experience also included cost analysis of school district spending patterns. He has published numerous policy reports on education and other policy areas in the state during this career.

He spent eight years as the Senior Budget Analyst and Director of the Office of Fiscal Policy and Analysis in the Senate and has a full understanding of a broad range of funding areas (education, health, human services) and is considered an expert in state budget policy.

From 2004 through 2011 he served as Director of Finance and Research for the Minnesota Office of Higher Education. In that role, he managed the daily operations of the Financial, Administrative Operations and Policy Research Divisions of the Office. He also managed the regulatory staff and possesses a strong understanding of private post secondary institutions in the state Dr. Misukanis served as Acting Director of the Agency during 2009.

Dr. Misukanis is currently an adjunct faculty at Hamline's Department of Public Administration. He has completed other education projects recently through the Department. During 2009, he prepared a report on cost of living indexes for school districts across the state. This work was done on behalf of Parent's United, a group that represented all of the major education associations in the state. In 2008, he worked with Education|Evolving, a local education group on a project investigating the allocation of school district funds directly to school buildings

Dr. Misukanis holds a Ph. D. in Education Policy and Administration from the University of Minnesota and has completed Master's work in Economics with a focus on public finance at the University of Wisconsin and a Bachelor's degree in Economics from the University of St. Thomas.

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### MCCA Detailed Program Offerings by Degree by Institution

Degree by Program	Institutions															Grand Total
	Academy College	Art Institutes International Minnesota	Brown College	DeVry University	Duluth Business University Inc.	Globe University	Herzing University	Institute of Production and Recording	ITT Technical Institute	Le Cordon Bleu College of Culinary Art	McNally Smith College of Music	Minneapolis Business College	Minnesota School of Business	National American University	Northwest Technical Institute	Rasmussen College
<b>Accounting</b>	3			1		2					2	2	2		1	13
AAS	1										1		1			3
Associate				1												1
BS	1					1						1	1		1	5
Certificate	1															1
Diploma						1					1	1				3
<b>Accounting - Banking</b>															1	1
AAS															1	1
<b>Accounting - Financial Accounting</b>															1	1
AAS															1	1
<b>Accounting - Financial Investigation</b>															1	1
AAS															1	1
<b>Accounting and Financial Management</b>				2												2
GC				1												1
Master's				1												1
<b>Accounting and Tax Specialist</b>						1						1				2
AAS						1						1				2
<b>Administrative Secretary</b>											2					2
AAS											1					1
Diploma											1					1
<b>Advertising</b>		1														1
BS		1														1
<b>Aircraft Dispatch</b>	1															1
Certificate	1															1
<b>Applied Information Technology</b>														1		1
BAS														1		1
<b>Applied Management</b>	1												2			3
AAS	1												1			2
BS													1			1
<b>Architectural or Engineering Drafting/Design and C</b>															1	1
AAS															1	1
<b>Audio Engineering</b>							1									1
Diploma							1									1
<b>Audio Production</b>							1									1
Diploma							1									1
<b>Audio Production and Engineering</b>							1									1
AAS							1									1

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Number of Degrees	Institutions																
Degree by Program	Academy College	Art Institutes International Minnesota	Brown College	DeVry University	Duluth Business University Inc.	Globe University	Herzing University	Institute of Production and Recording	ITT Technical Institute	Le Cordon Bleu College of Culinary Art	McNally Smith College of Music	Minneapolis Business College	Minnesota School of Business	National American University	Northwest Technical Institute	Rasmussen College	Grand Total
Aviation Business	1																1
AAS	1																1
B.S. Nursing														1			1
BS													1				1
Bachelor of Science in Computer Information System				1													1
BS				1													1
Bachelor of Science in Technical Management				1													1
BS				1													1
Baking & Pastry		2															2
AAS		1															1
Certificate		1															1
Business	1																1
AAS	1																1
Business Administration	1		2		1	2	2					2	2				12
AAS					1	1	1					1	1				5
Bachelor's				1													1
BS	1					1	1					1	1				5
MBA			1														1
Business Administration - Accounting														1			1
BS														1			1
Business Administration - Financial Management														1			1
BS														1			1
Business Administration -- Financial Management														1			1
BS														1			1
Business Administration - Human Resources																1	1
AAS															1		1
Business Administration - Information Systems														1			1
BS														1			1
Business Administration - Information Technology														1			1
BS														1			1
Business Administration - International Business														1			1
BS														1			1
Business Administration - Internet Marketing																2	2
AAS																1	1
BS															1		1
Business Administration - Management														1			1
BS														1			1
Business Administration - Marketing														1			1
BS														1			1

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### MCCA Detailed Program Offerings by Degree by Institution

Number of Degrees	Institutions																
Degree by Program	Academy College	Art Institutes International Minnesota	Brown College	DeVry University	Duluth Business University Inc.	Globe University	Herzing University	Institute of Production and Recording	ITT Technical Institute	Le Cordon Bleu College of Culinary Art	McNally Smith College of Music	Minneapolis Business College	Minnesota School of Business	National American University	Northwest Technical Institute	Rasmussen College	Grand Total
Business Administration Online	1				1												2
BS	1				1												2
Business Administrative Assistant						1						1					2
Diploma						1						1					2
Business Management			1			1						1			1		4
BS			1			1						1			1		4
Business Management - Business Administration																1	1
AAS																1	1
Business Management - Business Management																1	1
BS																1	1
Business Management - Call Center Management																1	1
AAS																1	1
Business Management - Child Development																1	1
AAS																1	1
Business Management - Entrepreneurship																1	1
AAS																1	1
Business Management - Human Resource																1	1
AAS																1	1
Business Management - Marketing and Sales																1	1
AAS																1	1
CAD Drafting							2										2
AAS							1										1
Diploma							1										1
Computer and Electronics Engineering Technology									1								1
AAS									1								1
Computer Animation	2																2
AAS	1																1
Certificate	1																1
Computer Drafting and Design									1								1
AAS									1								1
Computer Information Systems				1													1
BS				1													1
Computer Programmer											2						2
AAS											1						1
Diploma											1						1
Computer Science	1																1
BS	1																1
Corrections																1	1
AAS																1	1

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	Academy College	Art Institutes International Minnesota	Brown College	DeVry University	Duluth Business University Inc.	Globe University	Herzing University	Institute of Production and Recording	ITT Technical Institute	Le Cordon Bleu College of Culinary Art	McNally Smith College of Music	Minneapolis Business College	Minnesota School of Business	National American University	Northwest Technical Institute
Degree by Program															Grand Total
<b>Cosmetology Business</b>					1							1			2
AAS					1							1			2
<b>Crime Scene Evidence</b>														1	1
Associate														1	1
<b>Criminal Justice</b>		2			2							3	2		9
AAS		1			1							1	1		4
BS		1			1							2	1		5
<b>Criminal Justice (MBS Online)</b>												1			1
AAS												1			1
<b>Criminal Justice (MSB Online)</b>												1			1
BS												1			1
<b>Criminal Justice: Client Services/Corrections</b>														1	1
Bachelor's														1	1
<b>Criminal Justice: Criminal Offenders</b>														1	1
Bachelor's														1	1
<b>Criminal Justice: Homeland Security</b>														2	2
Associate														1	1
Bachelor's														1	1
<b>Criminal Justice: Investigation/Law Enforcement</b>														1	1
Bachelor's														1	1
<b>Criminal Justice: Psychology</b>														1	1
Bachelor's														1	1
<b>Culinary Arts</b>		1													1
AAS		1													1
<b>Culinary Arts</b>									1						1
AAS									1						1
<b>Culinary Management</b>		1													1
BS		1													1
<b>Database Administration</b>	1														1
AAS	1														1
<b>Dental Assistant</b>							2								2
AAS							1								1
Diploma							1								1
<b>Dental Hygiene</b>							1								1
AAS							1								1
<b>Design Management</b>		1													1
BS		1													1
<b>Digital Art &amp; Design</b>	1														1
BS	1														1



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Number of Degrees	Institutions																
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Digital Entertainment and Game Design								1									1
BS								1									1
Digital Film & Video Production		1															1
BS		1															1
Digital Photography			1														1
BS			1														1
Digital Video & Media Production												1					1
AAS												1					1
Digital Video and Media Production												1					1
BFA												1					1
Early Childhood Education															1		1
Associate															1		1
Early Childhood Education: Child & Family Studies															1		1
Associate															1		1
Early Childhood education: Child Development															2		2
AAS															1		1
Associate															1		1
Early Childhood Education: Special Needs															1		1
Associate															1		1
Electronic Commerce Management				1													1
GC				1													1
Electronics and Communications Engineering Technology								1									1
BS								1									1
Electronics and Computer Technology				1													1
Bachelor's				1													1
Engineering Program														1			1
AAS														1			1
Entrepreneurship				1													1
GC				1													1
Exercise Science															1		1
Associate															1		1
Fashion & Retail Management		1															1
BS		1															1
Financial Analysis				1													1
GC				1													1
Front Office Support														1			1
Diploma														1			1
Game and Application Development												2					2
AAS												1					1

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Degree by Program	Academy College	Art Institutes International Minnesota	Brown College	DeVry University	Duluth Business University Inc.	Globe University	Herzing University	Institute of Production and Recording	ITT Technical Institute	Le Cordon Bleu College of Culinary Art	McNally Smith College of Music	Minneapolis Business College	Minnesota School of Business	National American University	Northwest Technical Institute	Rasmussen College	Grand Total
BS												1					1
Game Design and Development			1														1
BS			1														1
Graphic Design	2	2									2						6
AAS	1	1									1						3
BS			1														1
Certificate	1																1
Diploma											1						1
Graphic Design Media					1												1
AAS					1												1
Health Care Management						1						1		1			3
BS						1						1		1			3
Health Coding														1			1
Diploma														1			1
Health Fitness Management - GU and MSB Online only						1						1					2
MS						1						1					2
Health Fitness Specialist						2						2					4
AAS						1						1					2
BS						1						1					2
Health Information Technician			1														1
AAS			1														1
Health Information Technology														1		1	2
AAS														1		1	2
Health Services Management					1												1
GC				1													1
Healthcare Coding														1			1
Diploma														1			1
Healthcare Management																1	1
Bachelor's																1	1
Hip Hop										1							1
Diploma										1							1
Hospitality Management		1															1
BS		1															1
Human Resource Management				2													2
GC				1													1
Master's				1													1
Human Services																1	1
Associate																1	1
Human Services Online					1												1

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Number of Degrees	Institutions																
Degree by Program	Academy College	Art Institutes International Minnesota	Brown College	DeVry University	Duluth Business University Inc.	Globe University	Herzing University	Institute of Production and Recording	ITT Technical Institute	Le Cordon Bleu College of Culinary Art	McNally Smith College of Music	Minneapolis Business College	Minnesota School of Business	National American University	Northwest Technical Institute	Rasmussen College	Grand Total
AAS				1													1
Information Management: Game and Simulation Production																1	1
Bachelor's																1	1
Information Management:: Digital Design and Animation																1	1
Bachelor's																1	1
Information Security				1													1
GC				1													1
Information Systems Management				2													2
GC				1													1
Master's				1													1
Information Systems Management - Computer Information Technology																1	1
AAS																1	1
Information Systems Management - Database Administration																1	1
AAS																1	1
Information Systems Management - Network Administration																1	1
AAS																1	1
Information Systems Management - Networking Security and Forensics																1	1
AAS																1	1
Information Systems Management - Web Programming																1	1
AAS																1	1
Information Systems Security								1									1
BS								1									1
Information Technology			1			2						2	2				7
AAS						1						1	1				3
BS			1			1						1	1				4
Information Technology -- Computer Network Systems								1									1
AAS								1									1
Information Technology -- Multimedia								1									1
AAS								1									1
Information Technology -- Software Applications and Programming								1									1
AAS								1									1
Information Technology /Net Admin/Microsoft														1			1
BS														1			1
Information Technology Emphasis/Programming														1			1
BS														1			1
Information Technology/Management Info. Systems														1			1
BS														1			1
Information Technology-Network Management/Microsoft														1			1
BS														1			1

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Number of Degrees		Institutions																
Degree by Program		Academy College	Art Institutes International Minnesota	Brown College	DeVry University	Duluth Business University Inc.	Globe University	Herzing University	Institute of Production and Recording	ITT Technical Institute	Le Cordon Bleu College of Culinary Art	McNally Smith College of Music	Minneapolis Business College	Minnesota School of Business	National American University	Northwest Technical Institute	Rasmussen College	Grand Total
Interactive Media and Graphic Design						1						1						2
AAS						1						1						2
Interior Design			2	1														3
AAS			1															1
BS			1	1														2
Interior Planning with AutoCAD			1															1
AAS			1															1
Law Enforcement																2		2
Associate																1		1
Certificate																1		1
Le Cordon Bleu Patisserie and Baking										1								1
AAS										1								1
Legal Admin Assistant/Secretary												2						2
AAS												1						1
Diploma												1						1
Legal Administrative Assistant						1							1					2
Diploma						1							1					2
Legal Office Assistant		1																1
Certificate		1																1
Management					1										1			2
BS					1													1
Master's															1			1
Management Accounting						1							1					2
AAS						1							1					2
Massage Therapy					2	2							2			2		8
AAS					1	1							1			1		4
Diploma					1	1							1			1		4
Master of Accounting and Financial Management					1													1
Master's					1													1
Master of Business Administration					1										2			3
GC					1													1
Master's															1			1
MBA															1			1
Master of Business Administration					1	1												2
Master's					1													1
MBA						1												1
Master of Business Administration (GU Online Division)						1												1
MBA						1												1
Master of Business Administration (MSB Online Division)												1						1

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MBA												1					1
Master of Management														1			1
Master's													1				1
Master of Science in Management						1											1
MS						1											1
Master of Science in Management (GU Online Division)						1											1
MS						1											1
Master of Science in Management (MSB Online Division)												1					1
MS												1					1
Masters in Human Resources Management				1													1
Master's				1													1
Media Arts & Animation		1															1
BS		1															1
Media Business						1						1					2
BS						1						1					2
Medical Administration	1																1
Certificate	1																1
Medical Administration																1	1
AAS																1	1
Medical Administrative Assistant						2						2	2				6
AAS						1						1	1				3
Diploma						1						1	1				3
Medical Assistant	1		1		2	2	2				2	2	1			1	14
AAS			1		1	1	1				1	1	1			1	8
Certificate	1																1
Diploma					1	1	1				1	1					5
Medical Billing & Coding	1																1
Certificate	1																1
Medical Billing & Coding Online					2												2
AAS					1												1
Diploma					1												1
Medical Billing and Insurance Coding							2										2
AAS							1										1
Diploma							1										1
Medical Laboratory Technician																1	1
AAS																1	1
Medical Staff Services Management														1			1
AAS														1			1
Medical Transcriptionist																1	1

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AAS																1	1
Microcomputer Support Specialist											1						1
AAS											1						1
Multimedia Design and Development				1													1
Bachelor's				1													1
Music Business					1					3		1					5
AAS					1					1		1					3
BA										1							1
Diploma										1							1
Music Composition										1							1
BA										1							1
Music Performance										1							1
BA										1							1
Music Performance: AAS										2							2
AAS										1							1
Diploma										1							1
Music Performance: AFA										1							1
Associate										1							1
Music Producer										2							2
AAS										1							1
BA										1							1
Music Production: AAS										1							1
AAS										1							1
Network & Communications Management				1													1
BS				1													1
Network & Communications Mgmt				2													2
GC				1													1
Master's				1													1
Network Administration	2																2
AAS	1																1
Certificate	1																1
Network Development			1														1
AAS			1														1
Network Management											1						1
AAS											1						1
Nursing							1						1				2
BSN							1						1				2
Nursing - RN to BSN														1			1
BS														1			1

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Degree by Program	Academy College	Art Institutes International Minnesota	Brown College	DeVry University	Duluth Business University Inc.	Globe University	Herzing University	Institute of Production and Recording	ITT Technical Institute	Le Cordon Bleu College of Culinary Art	McNally Smith College of Music	Minneapolis Business College	Minnesota School of Business	National American University	Northwest Technical Institute	Rasmussen College	Grand Total
Office Management	1																1
Certificate	1																1
Paralegal					2					1	2			2			7
AAS					1					1	1			1			4
BS					1						1						2
Certificate															1		1
Paralegal Online					1												1
AAS					1												1
Paralegal Studies													2				2
AAS													1				1
BS													1				1
Pharmacy Technician													1		1		2
AAS													1		1		2
Phlebotomy Technician					1												1
Diploma					1												1
Photography	1																1
BFA	1																1
Post-baccalaureate Paralegal Certificate					1							1					2
PBC					1							1					2
Practical Nursing															2		2
AAS															1		1
Diploma															1		1
Pro Tools Certificate							1										1
Certificate							1										1
Pro Tools Professional							1										1
Certificate							1										1
Professional Nursing															1		1
Associate															1		1
Professional Pilot	2																2
AAS	1																1
Certificate	1																1
Project Management				2													2
GC				1													1
Master's				1													1
Project Management	1																1
Certificate	1																1
Public Administration				1													1
Master's				1													1
Radio Broadcasting		1															1

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Degree by Program	Academy College	Art Institutes International Minnesota	Brown College	DeVry University	Duluth Business University Inc.	Globe University	Herzing University	Institute of Production and Recording	ITT Technical Institute	Le Cordon Bleu College of Culinary Art	McNally Smith College of Music	Minneapolis Business College	Minnesota School of Business	National American University	Northwest Technical Institute	Rasmussen College	Grand Total
AAS		1															1
Recording Engineer: Emphasis Live Sound										1							1
Diploma										1							1
Recording Technology: AAS										2							2
AAS										1							1
Diploma										1							1
RN to BSN Completion Program - MSB Online only													1				1
BSN													1				1
Sales and Marketing					1								1				2
AAS					1								1				2
Security Administration	1																1
AAS	1																1
Software Development		1															1
AAS		1															1
Software Engineering Technology					1			1									2
AAS					1												1
BS								1									1
Software Programming	1																1
AAS	1																1
Surgical Technologist															1		1
AAS															1		1
Technical Management			1														1
BS			1														1
Technical Support	1																1
Certificate	1																1
Television Production		1															1
AAS		1															1
The Art of Cooking		1															1
Certificate		1															1
Therapeutic Massage													2				2
AAS													1				1
Diploma													1				1
Transportation Business												1					1
AAS												1					1
Travel & Hospitality											2						2
AAS											1						1
Diploma											1						1
Veterinary Technology					1	2						2					5
AAS					1	1						1					3



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### MCCA Detailed Program Offerings by Degree by Institution

Number of Degrees	Institutions															
Degree by Program	Academy College	Art Institutes International Minnesota	Brown College	DeVry University	Duluth Business University Inc.	Globe University	Herzing University	Institute of Production and Recording	ITT Technical Institute	Le Cordon Bleu College of Culinary Art	McNally Smith College of Music	Minneapolis Business College	Minnesota School of Business	National American University	Northwest Technical Institute	Rasmussen College
BS					1							1				2
Visual Communication		1						1								2
AAS		1						1								2
Visual Communications/Graphic Design		1														1
BS		1														1
Visual Communications/Multimedia		1														1
BS		1														1
Visual Effects & Motion Graphics		1														1
BS		1														1
Web Design	1															1
Certificate	1															1
Web Design	1															1
AAS	1															1
Web Design & Interactive Media		2														2
AAS		1														1
BS		1														1
Web Graphic Design				1												1
Associate				1												1
Wireless Communications				1												1
GC				1												1
Grand Total	31	20	16	33	13	38	12	5	10	2	15	17	45	43	2	54
																356

**Appendix 3**  
**Demographic, Social-Economic and Academic Variables for Minnesota Higher Education Sectors**  
**Percent of Total by Variable**

	Public 2- Year	Public 4-year Non-doctorate	Public 4-Year Doctorate	Private Not-for- profit 4-yr Nondoctorate	Private Not- for-profit 4- Year Doctorate	Private For- profit 2 Years or More	Attended More Than One Institution	Total
<b>Total Enrollment</b>	39.9	9.4	20.1	7.4	6.2	8.4	8.7 !	100%
<u><i>Gender</i></u>								
Male	42.7	11.0	18.1	7.5	6.5	6.1	8.1 !	100%
Female	37.9	8.2	21.5	7.3	6.1	10.0	9.0 !	100%
<u><i>Disability: Has some type of disability</i></u>								
No	38.7	9.4	21.3	7.6	6.4	8.1	8.5 !	100%
Yes	50.9	8.9	8.2 !!	5.5	4.8 !	11.3	10.4 !	100%
<u><i>Dependency and marital status (separated is unmarried)</i></u>								
Dependent	29.5	11.3	28.1	11.1	7.5	3.4	9.0 !	100%
Indep, no deps, unmarried/separated	49.3	7.6	13.6	1.9 !	5.7	13.5	8.3	100%
Indep, no dependents, married	56.3	6.8	9.6 !	3.5	5.7 !	8.4	9.6 !	100%
Indep, with deps, unmarried/separated	55.3	4.8	8.5 !	1.2	2.4 !	20.7	7.1 !	100%
Indep, with dependents, married	58.8	7.0	3.0 !	2.8 !	4.3	15.9	8.4 !	100%
<u><i>Single parent independent students</i></u>								
Not a single parent	38.0	9.9	21.5	8.1	6.7	6.9	8.8 !	100%
Single parent	55.3	4.8	8.5 !	1.2	2.4 !	20.7	7.1 !	100%
<u><i>Marital status</i></u>								
Single, divorced, or widowed	36.0	10.0	23.5	8.4	6.6	6.8	8.7	100%
Married	58.0	6.9	5.0	3.0	4.7	13.6	8.8 !	100%
Separated	46.4	1.7 !!	0.0	0.0	4.0 !!	41.3	6.6 !!	100%
<u><i>Race/ethnicity (with multiple)</i></u>								
White	39.6	10.3	19.3	8.1	6.5	7.4	9.0 !	100%
Black or African American	51.5	4.7	9.4	3.2	4.8 !!	17.3	9.1 !	100%
Hispanic or Latino	39.0	6.4 !	22.6 !!	7.1 !!	5.8 !	12.6 !	6.6 !	100%
Asian	28.8	6.9	38.4	6.6	7.5 !	4.9 !	6.8 !	100%
American Indian or Alaska Native	68.3	4.1 !	13.8 !!	1.2 !!	0.0	9.9 !	2.6 !!	100%
More than one race	27.6	6.7 !	38.5 !	4.1 !	3.2 !!	14.5 !	5.5 !!	100%

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	Public 2- Year	Public 4-year Non-doctorate	Public 4-Year Doctorate	Private Not-for- profit 4-yr Nondoctorate	Private Not- for-profit 4- Year Doctorate	Private For- profit 2 Years or More	Attended More Than One Institution	Total
<b>Total Enrollment</b>	39.9	9.4	20.1	7.4	6.2	8.4	8.7 !	100%
<i>Parent's highest education level</i>								
Do not know parent's education level	63.5	4.5	4.3 !!	0.8 !!	6.4	14.0	6.5 !	100%
Did not complete high school	59.1	4.9	7.0 !!	3.5	8.1 !!	10.4 !	7.0 !	100%
High school diploma or equivalent	50.5	9.7	10.1	3.9	4.2	14.4	7.2 !	100%
Vocational or technical training	49.3	12.3	11.1 !	4.8	6.7	8.4	7.5 !	100%
Less than two years of college	43.0	8.2	18.9	4.8	5.1 !	8.7	11.2 !	100%
Associate's degree	42.0	11.3	19.1 !	3.2	6.8	8.5	9.1 !	100%
2 or more years of college but no degree	38.7	9.5	27.8	6.4 !	3.8 !	6.9	7.0 !	100%
Bachelor's degree	31.0	10.4	27.6	9.9	6.8	5.1	9.2 !	100%
Master's degree or equivalent	31.1	9.8	22.9	10.8	9.1	5.9	10.5 !	100%
First-professional degree	16.3	3.4 !	42.8 !	18.6 !	6.7 !	1.1 !!	11.2 !!	100%
Doctoral degree or equivalent	20.0	5.3	35.3	20.4	7.3	5.8	6.0 !!	100%
<i>Veteran status</i>								
Not a veteran	39.7	9.4	20.4	7.5	6.3	8.0	8.6 !	100%
Veteran	47.3	7.4 !	3.9 !!	2.0 !!	2.7 !!	27.3	9.4 !	100%
<i>Age as of 12/31/07</i>								
18 or younger	35.5	9.6	26.3 !	13.3	7.0 !	3.2 !	5.1 !	100%
19-23	31.1	11.0	26.9	9.8	7.2	4.4	9.5 !	100%
24-29	51.4	7.4	10.0 !	2.1	5.3	14.7	9.1 !	100%
30-39	51.3	6.5	9.4	3.3 !	3.4	17.4	8.8 !	100%
40 or older	62.4	6.0	4.1 !	0.9	5.0	15.4	6.2 !	100%
<i>Attendance pattern</i>								
Full-time/full year, 1 institution	25.2	13.2	36.7	12.7	9.4	2.9	0.0	100%
Full-time/full year, 2+ institution	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100%
Full-time/part year	49.4	9.8	8.2 !!	10.5	6.4 !	11.3	4.5 !	100%
Part-time/full year, 1 institution	62.1	5.8	8.3	2.3 !	4.4	17.0	0.0	100%
Part-time/full year, 2+ institution	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100%

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Fields with single or double exclamation points have wide confidence intervals

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<b>Total Enrollment</b>	39.9	9.4	20.1	7.4	6.2	8.4	8.7 !	100%
Part-time/part year	60.5	7.5	7.3 !	1.4 !!	3.1	13.9	6.3 !!	100%
<i>Credit cards: Balance due on all credit cards</i>								
Less than \$500	39.2	12.8	7.1 !!	18.4 !	8.0 !	5.8 !	8.7 !	100%
\$500-999	31.9	12.7 !	33.1 !	4.6 !	6.3 !	4.8 !!	6.6 !!	100%
\$1,000-1,999	36.0	10.7 !	26.1 !	6.1 !	9.1 !!	2.4 !	9.7 !	100%
\$2,000-2,999	34.7	11.0	19.9 !	8.5 !	6.1 !	10.7 !	9.1 !!	100%
\$3,000 or more	40.5	14.1	23.2 !	2.5 !!	5.4	3.4 !	10.9 !!	100%
<i>Total income by dependency</i>								
Dependent: Less than \$10,000	43.6	7.3 !	20.6 !!	6.0 !!	5.5 !	5.4	11.6 !!	100%
Dependent: \$10,000-\$19,999	39.7	9.3 !	21.6 !	10.3 !!	6.8	7.0 !	5.2 !	100%
Dependent: \$20,000-\$29,999	34.2	7.8	24.9 !	9.7 !	6.6 !!	4.2 !	12.5 !	100%
Dependent: \$30,000-\$39,999	31.8	9.2	36.4	6.5	2.9 !!	4.7	8.6	100%
Dependent: \$40,000-\$49,999	34.5	13.0	19.0	11.0	10.2 !	5.9 !	6.4 !	100%
Dependent: \$50,000-\$59,999	39.0	13.8	13.8 !	9.1	8.8 !	2.8	12.7 !	100%
Dependent: \$60,000-\$69,999	35.7	17.2	13.2 !	13.4 !	5.5 !!	4.3	10.7 !	100%
Dependent: \$70,000-\$79,999	33.0	12.3	28.3	9.1	6.2	3.9 !	7.3 !	100%
Dependent: \$80,000-\$99,999	24.7	13.1	29.5	14.0	7.0	1.9 !	9.8 !	100%
Dependent: \$100,000 or more	20.5	9.4	38.5	12.6	9.3	2.2	7.5 !	100%
Independent: Less than \$5,000	49.5	5.9	22.6	1.2 !!	7.2 !!	7.8	5.9	100%
Independent: \$5,000-\$9,999	54.7	7.8	12.5 !	1.9 !!	4.8 !	10.1	8.1 !	100%
Independent: \$10,000-\$19,999	51.7	7.0	9.0 !	0.7 !!	2.9	20.1	8.8	100%
Independent: \$20,000-\$29,999	55.0	4.2	6.7 !!	3.4 !	1.8 !	20.8	8.1 !	100%
Independent: \$30,000-\$49,999	55.4	6.3	6.8 !	1.9	4.9	16.8	7.9 !	100%
Independent: \$50,000 or more	56.9	8.2	5.0 !!	3.0 !	5.8	12.2	9.0 !	100%
<i>Dependent parent income</i>								
Less than \$36,000	37.2	8.3	25.6	8.1	5.8	5.3	9.7 !	100%
\$36,000-66,999	36.1	13.9	17.3	9.9	7.7	4.4	10.7 !	100%
\$67,000-104,999	27.1	12.8	30.8	11.9	6.7	2.8	7.9 !	100%

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<b>Total Enrollment</b>	39.9	9.4	20.1	7.4	6.2	8.4	8.7 !	100%
\$105,000 or more	20.2	9.3	37.8	13.6	9.4	1.8	7.9 !	100%
<i>Prior degree: Undergraduate certificate or diploma</i>								
No	43.4	13.6	9.6	3.5	7.0 !	10.6	12.3 !	100%
Yes	61.0	4.8	5.6 !!	2.1 !!	4.5	13.4	8.5 !	100%
<i>Undergraduate degree program</i>								
Certificate	80.4	0.5 !	0.0	1.1 !!	2.7 !	9.5	5.8 !	100%
Associate's degree	80.7	0.1 !!	0.0	0.0 !!	0.8	9.1	9.3 !	100%
Bachelor's degree	0.8	17.9	39.8	14.4	11.4	8.0	7.8	100%
Not in a degree program or others	67.3	7.6 !!	0.0	2.2	0.5 !!	3.6 !	18.9 !	100%
<i>Field of study: Undergraduate</i>								
Undeclared	23.0	6.7	6.8 !!	26.2	14.5 !	11.7	11.1 !	100%
Humanities	50.3	4.6	23.2	8.4	3.0	2.3	8.3 !	100%
Social/behavioral sciences	3.1	13.4	55.3	12.8	7.0	0.5 !!	7.9 !	100%
Life sciences	8.4	13.3	50.1	9.0	9.2 !	1.2 !!	8.8 !	100%
Physical sciences	4.8 !!	12.3 !	18.2 !!	34.3 !	21.9 !!	0.0	8.5 !!	100%
Math	7.2 !!	11.3 !!	41.8 !!	9.6 !!	26.8 !!	0.0	3.3 !!	100%
Computer/information science	37.2	6.5	4.5 !!	3.8 !	5.7 !!	31.0	11.4 !!	100%
Engineering	33.9	13.1	43.1	0.8 !!	0.6 !!	5.0	3.5 !	100%
Education	12.5	25.5	16.4 !!	20.5	11.0 !	1.4 !!	12.7 !	100%
Business/management	33.6	14.5	9.1 !	6.1	9.8	19.8	7.2	100%
Health	62.0	4.6	2.9 !	1.6 !	7.2	11.6	10.1 !	100%
Vocational/technical	84.3	2.1 !	5.6 !!	0.0	0.5 !!	3.7 !	3.9 !	100%
Other technical/professional	38.3	9.9	24.9	4.6	3.5	11.5	7.3 !	100%
<i>Highest level of education ever expected</i>								
Certificate	85.7	0.0	0.0	0.0	0.6 !!	9.3	4.4 !	100%
Associate's degree	77.0	0.3	0.0	0.1 !!	0.8 !!	14.9	6.8 !	100%
Bachelor's degree	45.6	10.1	14.3	5.5	5.9	10.3	8.3 !	100%

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<b>Total Enrollment</b>	39.9	9.4	20.1	7.4	6.2	8.4	8.7 !	100%
Post-BA or post-master certificate	33.5	8.0	23.4 !	11.8	10.9 !!	4.0 !	8.5 !	100%
Master's degree	27.4	13.6	24.9	10.1	8.5	6.5	9.0 !	100%
Doctoral degree	18.5	5.5	46.3	12.2 !	5.9	2.3 !	9.3 !	100%
First-professional degree	18.3	9.8	34.4	12.0	7.7	5.5 !	12.3	100%
<i>Work: Primarily student or employee</i>								
Student working to meet expenses	35.0	9.9	24.8	8.9	6.6	5.6	9.2	100%
Employee who decided to enroll in school	58.1	5.7	4.4 !	1.7	4.5	17.9	7.7 !	100%
<i>Work: Hours per week</i>								
1-15 hours	23.2	9.6	30.0	14.1	10.6	3.3	9.3 !	100%
16-25 hours	34.8	10.4	29.0	7.2	4.1	5.3	9.1	100%
26-39 hours	54.3	8.2	12.1 !	2.6	5.2	8.8	8.7 !	100%
40 or more hours	53.4	7.1	6.5	3.6	4.6	16.7	8.2 !	100%
<i>Job: earnings from work while enrolled (include work-study/assistantship)</i>								
\$1-2,399	29.2	11.2	19.6	14.9	10.9	4.5	9.7	100%
\$2,400-5,999	32.0	7.9	31.4	9.8	6.1	4.5	8.2 !	100%
\$6,000-12,999	45.9	10.7	19.9	2.9	4.1	7.4	9.1 !	100%
\$13,000 or more	51.6	6.8	9.6	3.1	4.5	15.8	8.5 !	100%
<i>Independent student and spouse income</i>								
Less than \$11,000	51.5	6.5	16.5	1.4 !	5.9 !	11.7	6.5	100%
\$11,000-25,999	52.5	6.4	10.4 !	1.8 !	2.7	17.4	8.8 !	100%
\$26,000-48,399	56.0	5.4	5.4 !	2.4	3.6	19.3	8.0 !	100%
\$48,400 or more	56.9	8.0	4.8 !!	2.9 !	6.0	12.4	9.0 !	100%

**Appendix 4**  
**Sources of Information for Economic Impact Study**

1. General Fund Budget History; Minnesota Department of Management and Budget
2. Presentations from Tom Stinson and Tom Gillaspy on Budget Trends, 2011
3. November 2011 Budget Forecast; Minnesota Department of Management and Budget
4. ISEEK web site; Minnesota Department of Employment and Economic Development
5. Integrated Postsecondary Education Data System (IPEDS); U.S. Department of Education
6. National Postsecondary Student Aid Study (NPSAS) 2008; U.S. Department of Education
7. Industry and Occupational Projections 2009- 2019; Minnesota Department of Employment and Economic Development
8. Baccalaureate and Beyond Longitudinal Study, 2008-09; U.S. Department of Education
9. Minnesota Office of Higher Education; Web site and personal communications
10. Regional Input-Output Modeling System (RIMS II); Bureau of Economic Analysis
11. Help Wanted: Projections of Jobs and Education Requirements Through 2018; June 15, 2010, Anthony P. Carnevale; Georgetown University Center on Education and the Workforce.
12. Occupational Projections; US Bureau of Labor Statistics
13. Tax Incidence Study, 2011; Minnesota Department of Revenue
14. Input/Output Tables and Gross Domestic Product Estimates; Bureau of Economic Analysis
15. American Community Survey, 2007-2009, Minnesota; US Bureau of the Census
16. Population Projections, Minnesota State Demographic Center